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Editorial

THE FREE NATIONS must build stronger conventional forces if they are not to be faced with the alternatives of appeasement or initiating a nuclear holocaust. What four or five years ago was regarded as a heresy is now accepted as a platitude, and like all platitudes it has become a substitute for thought. The task of rebuilding and re-equipping strong and efficient armies and navies on the part of a group of nations which are enjoying an unprecedented degree of material prosperity, and which have heavy commitments in the form of national and international expenditure on welfare, is going to be a long and arduous one. It requires more than just a recognition of the need for them; it requires intelligent and dispassionate consideration of priorities, between different forms of equipment, between different services, and – in the case of NATO – between different countries.

It is for this reason that *Survival* reprints parts of two studies on the role and needs of the British and the American armies, and the whole of two important articles on naval affairs. The fourth, dealing with the problem of small European navies, has a direct connection with the first of the Institute's own studies on *The implications of interdependence within NATO*. This was the subject of the Institute's first Annual Conference, held at Oxford at the beginning of October, which was attended by many members of the Institute together with a number of senior officials, civil and military, from the NATO countries and the international staffs. The final report is due to be published in February.

With the feet of the statesmen now half-way up the road to the summit, it is essential for intelligent men and women to clear their minds on another subject where platitudes have often militated against thought – disarmament. The contributions that have been made to constructive analysis in this field are relatively few. The next issue of *Survival* will include some of them. In the meantime, the Institute has attempted to make a modest contribution to debate on this problem of disarmament by publishing what we believe to be the most accurate assessment yet compiled of the relative military strengths of NATO and the Communist bloc. This pamphlet is available from the Institute, price 1*s*. ($00.20) post free.

The British Army in the Nuclear Age

A year ago a powerful study group was constituted in London, under the auspices of The Army League, to consider the future role and needs of the British Army. The Report has been written by Richard Goold-Adams, Vice-Chairman of the Institute. Reprinted here are the general assumptions of the study, the section relating to the British Army's role in NATO, *and the summary of conclusions. The Report is available from The Army League, 99a Park Lane, London, W.1. price 2s. 6d.*

The members of the group were as follows:

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NEVER BEFORE in history has there been such a clear-cut difference between deterrence and defence, between building up armaments and preparing for actual war. Hitherto, armaments have always had two purposes: to dissuade an enemy from attacking, but, if war should come, to be used against him when it does. Today, with the arrival of the nuclear and missile age, the colossal new weapons are virtually of value only in persuading the great powers not to attack each other rather than in winning victory if they should do so. This, however, has also introduced radical changes in the role of conventional forces, by land, sea and air. And for the British Army, in particular, it has demanded a sharp break with the past and a great deal of urgent fresh thinking about the future.

Whatever changes this new thinking may involve, if Britain is to be secure, the British Army still has an essential role to play. In terms of nuclear weapons, people may argue about the precise effect of the rapid development of Soviet nuclear power. They may hold conflicting opinions on the exact balance of terror. They may disagree about the extent to which at any given moment the deterrent depends on the manned bomber or the long-range missile. They may dispute the possibilities of achieving complete success with a surprise attack. They may underestimate or overestimate the value of the deterrent in the hands of Britain as compared with the United States. There is no universally accepted military doctrine on any of these points, and indeed it is almost certain that the truth is shifting from year to year. But the key fact which emerges is that, since global nuclear war would mean dust and ashes for victor as well as vanquished, the chances of lesser military action remain. Consequently, anything that can be done to limit the possibilities of a conflict spreading should and must be done. . . .

Many people have not realized what an important turning point the Army has now reached. Not only has the advance of the nuclear age failed to invalidate the case for up-to-date conventional forces, as the following pages will show, but the British Army is on the threshold of once again becoming composed entirely of regulars for the first time since the war. The occasion has also coincided with the moment when, for both technical and economic reasons, the re-equipment of the Army has suddenly been

able to take a long awaited stride forward. As the Minister of Supply, Mr. Aubrey Jones, said in the House of Commons on February 26, 1959, 'It is not an exaggeration to suggest that never will the Army have seen such a concentrated phase of renovation and re-equipment as it is now about to see over the next two, three or four years.' . . .

Assumptions in the background

In accepting the Government's intended figure of 180,000 men as our starting point, we in the Group have also made some of the assumptions which lie behind that figure. Amongst other things we have assumed, on the basis of evidence already coming forward, that the return to a regular Army will improve the morale of the regulars themselves. This will not only raise the efficiency of the individual already enrolled, but it can be seen to have an influence on the man who is still thinking of joining up. He is encouraged to join, when he might otherwise not have done so; so long as the Army was largely a conscript army, the chance of recruiting more than, say, 140,000 regulars was poor. In fact, we have assumed that the improved pay and conditions, combined with the attractions of a fully professional force, will enable the target of 180,000 by 1963 to be hit, except perhaps in respect of officers. . . .

Another assumption, just as wide as the prospect of having a better equipped and better trained Army, is that the nuclear age has relieved it of virtually all responsibility for the direct defence of these islands themselves. In the old-fashioned sense Britain's front line today ought to lie well beyond the Rhine. If continental Western Europe were overrun, the hope of salvaging the United Kingdom from the ruins would be almost negligible. Even without the use of atomic weapons, the air battle of 1940 could not be repeated in view of the development of short range ballistic missiles and their possible use against us from continental launching pads. In addition, the value of the early warning radar system, such as it is, would be negligible if it were no further forward than the Channel coast – though it is also true that defence in the air as a result of the introduction of guided missiles, both ground to air and, probably even more important, air to air, is now so powerful that conventional bomber offensives on the lines of the last war are scarcely any longer practicable. . . .

Although much of this report is concerned with some of the special problems involved in transporting and maintaining forces at distant points of the Commonwealth, we wish to go on record with the unequivocal statement that we regard the commitment in Europe as Britain's top military priority. It is on the effective maintenance of both a nuclear and a non-nuclear deterrent in Western Europe that all the rest of Britain's military calculations must be based. . . .

NATO – the first priority

While it is clear that the NATO commitment is in every sense the first priority for the British Army, we spent much time in the Group discussing the special tasks which Britain faces in other parts of the world. Partly on political grounds, we differed between ourselves about the extent to which colonial territories imply permanent military commitments. We assumed, therefore, that whether or not certain particular places should or will continue to have British garrisons, when looked at from the point of view of planning in London at least half the new British Army must at all times be held ready to deal with localized military action overseas. And by and large this will involve the movement of troops from the United Kingdom to the point of trouble as quickly as possible.

The precise form which this military action might take naturally varies greatly. During the past decade British troops have notably been deployed in Korea from 1950 to 1953; in Malaya and Singapore throughout the period, including the time since the Federation became independent in August of 1957; in Kenya for the Mau Mau rebellion from 1952 to 1956, and since; in Cyprus against the EOKA terrorist movement from 1954 to 1959; at Suez in 1956; in Oman in 1957; in the defence of the Aden Protectorate in 1958; and in Jordan up to 1956 and again in 1958. This is not to mention the continued existence of British garrisons or bases, training or recruiting units or riot detachments in such places as Hongkong, Borneo, Nepal, Bahrein, West Africa, Libya, Malta, Gibraltar, the West Indies and British Guiana.

The Korean war was a special case. There may never again be a limited war of such dimensions, with soldiers of more than one of the great

powers taking direct part themselves. It may be, that is, that if another 'Korea' looked like arising, tactical atomic weapons would inevitably be used, with all that that would mean for the West, whose forces would have to approach by sea or air. Nearly ten years have passed since the invasion of South Korea and during that time a great deal has happened. Nuclear weapons themselves have enormously developed, particularly in becoming smaller and more plentiful. Thought on both sides of the iron curtain has matured on the question of when and how such weapons could be used. A great deal of military and political study has been devoted to the problems of what is or is not vital to either side. A convention has almost grown up that, if open Communist aggression took place across certain parts of the great truce line that runs between East and West, all-out war would become unavoidable. while in other areas a political no man's land is still accepted among the uncommitted. And, not least in importance, there are such intangibles as whether the American public would or would not again accept the loss of so many American lives without demanding resort to tactical atomic weapons, and indeed whether either side could afford to accept defeat in a major limited war of this type without being too strongly tempted to widen it.

It may well be, on the other hand, that another 'Korea' could take place in spite of all these imponderables. No one knows. But, since it was no part of our task to attempt to resolve the defence problem as a whole, we have made certain strictly definable assumptions in this field as well. We assumed, first, that the British Army would be unlikely to be engaged in an overseas war involving the use of tactical atomic weapons without the Americans. We assumed, similarly, that the British Army would not be committed to fighting against a major Communist power without having the Americans as allies. And we assumed, finally, that neither of these contingencies, which raise so many considerations of possible global war, invalidate the conclusions we have reached about the role of the British Army in any limited overseas operations within the context of the cold war.

As was emphasized in the opening sentences of the report, there is a big difference today between deterrence and defence. And while we regard a standing commitment to NATO as a priority because this is part of the basic Western deterrent, in other respects the aim of this report is to consider the functioning of the British Army in its straightforward role of day-to-day defence. Although Britain has other standing commitments besides the North Atlantic Treaty and these may contribute towards deterring war in their respective areas, none of them in practice requires the permanent allocation of specific forces. Accordingly, we have assumed that, from the point of view of deploying the British Army in another 'Korea', lessons would be applied which had been learnt either in the course of the deliberate training now being undertaken in tactical atomic warfare, or through the normal experience gained, for instance, from Rhine Army's participation in a large-scale military organization such as Northern Army Group in Germany. We have not, that is, seen fit to devote any special section of this report to detailed speculation about the possibilities of major allied action being required in some theatre other than Europe. This does not mean, however, that we are blind to the fact that such possibilities exist in the Middle East or Far East.

Britain's commitments

Britain's actual foreign commitments, other than those in the NATO area, may be summarized as follows. In the Middle East, the Baghdad Pact, now known as the Central Treaty Organization since Iraq withdrew in 1959, requires that Britain should go to the assistance of Turkey, Persia or Pakistan if they are attacked; but the operative clause is very cautiously worded, and, following the bilateral guarantees subsequently given to these countries by the United States, any such assistance would be likely to be on a joint Anglo-American basis with all that that implies. Turkey, of course, forms part of NATO anyway. Apart from this central area, Britain is committed under the treaty of 1953 to go to the aid of Libya in the event of war or armed conflict, and to provide help with arms and training in return for certain military facilities. In addition there are long-standing treaties in the area of the Persian Gulf, guaranteeing the territorial integrity of Kuwait and other Trucial States.

Further East in Asia there are three commitments, two fairly loose but the third – in Korea –

categoric. First, under the South East Asia Collective Defence Treaty of 1954, commonly called SEATO, Britain has undertaken, along with Australia, France, New Zealand, Pakistan, the Philippines, Siam and the United States, to 'act to meet the common danger in accordance with its constitutional processes' in the event of aggression – or also in some respects of subversion – in 'the general area of South East Asia, including the entire territories of the Asian parties, and the general area of the South West Pacific'. It is notable that Hongkong and Malaya were left out of SEATO. Secondly, however, under the defence agreements of January and September 1957, Britain has agreed to assist in the external defence of the newly independent Federation of Malaya and to help with the training and development of its armed forces. In return there is a thirty-year lease on military property and the right to station troops in the Federation. This, of course, is all quite distinct from Britain's continuing liabilities towards its own colonial territories, and towards Singapore.

With regard to Korea itself, on August 7, 1953, the sixteen nations which made up the United Nations force affirmed that, in the event of a renewal of armed attack, they would resist it promptly and in unison, and warned that 'the consequences of such breach of the armistice would be so grave that, in all probability, it would not be possible to confine hostilities within the frontiers of Korea'.

These, then, are the formal commitments under which British troops might be required to fight. In addition, as mentioned above, there are the whole range of informal but equally binding responsibilities which arise from the existence of the colonial territories and the Commonwealth. The form that any such future action might take varies widely. From the nature of the threat, some of it might well again be the kind of operation needed to deal with Communist subversion in Malaya. Another form might be a type of action in aid of the civil power like those against the Mau Mau in Kenya or against EOKA in Cyprus. There are also more obviously military tasks such as the paratroop landings in Jordan, the skirmishing in the Arabian peninsula, and the Suez expedition. But whatever the political background, from a purely Army point of view the one fact which emerges very clearly is that the key to success is mobility. For every kind of overseas operation the British Army needs a greater degree of strategic mobility than anything it has achieved before. Indeed, in some cases, if it is known to have the power to strike quickly, it may never need to strike at all.

All these are factors which must continue to exist in some form at least until all Britain's colonies have become independent, and very probably so long as there is a Commonwealth at all. In spite, therefore, of differing views on the political aspects of overseas commitments, we were unanimous in the Group in devoting a considerable proportion of our time to issues raised by the problems of air transport; by the role of the Navy; by the possibilities of stockpiling equipment at strategic bases; by the continuing requirements for certain overseas garrisons; by the need for a central strategic reserve; and by the problem of training troops for such a wide range of possible duties. In all this, finally, we were governed throughout by two considerations. One was the knowledge that no oversimplification of thought about a push-button nuclear age can do away with the basic need for the man on the spot. What is needed to make good the deterrent in Europe may be firepower. What is needed overseas is certainly manpower. And our task as we saw it was to review those aspects of the Army's affairs where there is obvious room for improvement, or where there is at least a case for taking another look at the problem. . . .

The Task in Europe

The chief military feature of the ten years since the North Atlantic Treaty was signed has been the West's loss of its undisputed nuclear superiority. This has changed many things, and much of the change has naturally been recognized at SHAPE. But, as a Group, most of us felt that the new thinking has not gone far enough, and we were unable to place as much faith in the use of tactical atomic weapons to offset conventional inferiority as the official strategists do. We particularly doubted whether the West could expect any superiority in numbers of such weapons.

Admittedly, General Norstad and his staff themselves emphasize the renewed importance of larger ground forces as part of the basic NATO deterrent. Admittedly, on the other hand, the original Lisbon goal of fifty peacetime divisions

in Western Europe, with virtually as many in first-line reserve, was higher than has so far proved practicable. The cold war is essentially a political struggle and the West will defeat its own purpose if it cripples its economy with heavier permanent armaments than that economy can bear – quite apart from the virtual impossibility of getting people in a democracy to vote more than a definite proportion of their national income as normal defence expenditure. But two major doubts arose in some of our minds. First, it is far from certain that, if both sides were equally equipped with tactical atomic weapons, the employment of such weapons would necessarily favour the defence. Although in the West it is customary to assume so, the point is very far from proven; and it is certain that the equipping of Soviet forces with tactical atomic weapons is proceeding rapidly. Secondly, as has already been suggested, in terms of conventional weapons the trend of modern technical development *does* favour the defence. Improvements in anti-tank gunnery and developments such as the strides now being made in producing small, portable and relatively cheap homing missiles look like presenting a new challenge to the tank as the master of the battlefield. And if these two doubts are even moderately well founded, they add considerable strength to the case, already made on other well-known grounds, for not resorting to the use of tactical atomic weapons unless it is absolutely certain that everything else has failed.

The symbols of NATO military philosophy have long been the sword and the shield. The sword is the long-range strategic striking power – not itself under NATO command – and this is accompanied by a shield force on the ground. In the past there have been several different theories about the precise relationship to one another of these two complementary and essential elements in Western defence. Today, the development of a virtual stalemate in the field of major nuclear weapons has somewhat changed the official thesis on which the maintenance of a shield is based. The result has been to lay even greater emphasis than hitherto on the role of the military forces which are situated in Western Europe. With this point of view we in the Group fully concurred. Our criticism arose only from the consideration, first, that the argument for more troops could be taken even further than General Norstad is inclined to take it; and, secondly, as a direct corollary of this, that Britain's own contribution to the shield force has now been reduced to an absolute minimum below which it would be dangerous to go in present circumstances, for political as well as for military reasons. . . .

In all this (the deterrence of attack in Europe) we were clear that the British Army has an important role to play. Indeed, without the British contribution, small though that may be, a crucial element in the SHAPE plan would in fact collapse. That is why it is peculiarly important that no false assumptions should be made or thoughtless decisions be taken about reducing the size of the British forces in Germany. A cheeseparing saving, made for short-term reasons today, could have the most lamentable long-term effects tomorrow.

The present British aim appears to be to maintain the British Army of the Rhine (BAOR) at a minimum strength of 55,000 men. And although in conditions of modern warfare the ideal composition of a division is open to argument, there is no doubt that 55,000 men cannot be squeezed to produce more than three normal divisions or their equivalent in modern brigade-groups. There is also no doubt that a reduction of the British land forces on the continent of Western Europe below the level of 55,000 would make it impossible to pretend that we had even three divisions committed to NATO. As things actually stand, it would seem that the level of strength in Rhine Army is slightly above 55,000. It is known, however, not only that this is now the publicly declared minimum figure, but also that consideration was at one time given to the possibility of reducing it to 45,000. Indeed, there seems reason to believe that it was only the increase in the total size of the intended regular Army from 165,000 to 180,000 which swung the decision in favour of the higher figure of 55,000. . . .

Quantity and Quality

Part of the trouble about British force reductions has been that, particularly to those Europeans who regard the whole undertaking in the light of a moral as well as a legal commitment, these conditions have not so far justified the cuts which have in fact been made. Apart from Cyprus, there has been nothing specific during the past two years which could genuinely be

called 'an acute overseas emergency'. And on the economic front the feature of the present period is that Britain now appears to be in rather better financial shape, with a stronger pound, than at any time since the war.

All this is important in view of what has happened to the quality of the British formations in Germany. If our forces were fully up to strength, excellently equipped and in tip-top training, a good deal of the recent sniping at Britain would very possibly not have taken place. As it is, the relative decline of the British forces on the continent has led to doubts about our intentions, criticism of our political behaviour and no little loss of prestige, which we can ill afford. Admittedly the row with Federal Germany over support costs has at last blown over, but the damage has been done. . . .

We welcome the extent to which the British forces are now undergoing a rapid and radical refit, but this has long been overdue in terms of comparison with other armies, including – though somewhat naturally – the brand new Federal German Bundeswehr. No one, moreover, can be absolutely certain that any government's re-equipment plans will be carried through to full completion until the goods are actually produced. In addition, although these costly measures are rightly designed to improve the quality of the British contributions, it must not be forgotten that other NATO forces are improving too. In a Europe where Federal Germany is on the way to establishing a new position of ascendancy and where the France of General de Gaulle is striking out against the whole postwar pattern of Western power, Britain can afford nothing less than the best if it is to retain its own political influence on the international stage. . . .

From a political point of view there is a good deal to be said for maintaining in Germany part, if not the whole, of a central strategic reserve for the British Army. Larger forces there would encourage belief in the firmness of British intentions, reinforce British influence among members of the Common Market – Western Germany, France, Italy, Holland, Belgium and Luxembourg – and add directly to the strength of the NATO shield force deterrent. It would have to be clearly understood, on the other hand, that any increment above a given minimum for Rhine Army did represent a variable figure, capable of adjustment downwards as well as upwards without prior notice. Otherwise the reserve would simply become absorbed into BAOR, and nothing but political harm might be done when it was called upon for duty elsewhere in the world; in spite of obvious difficulties this might nevertheless prove possible to arrange.

The whole question of Britain's strategic reserve, however, raises a number of other very important issues, and, in spite of the political desirability, most of us in the group reluctantly felt that on balance it is impracticable to maintain any significant portion of this reserve in Germany. . . .

On the military side, we were clear that it is not to Britain's advantage to keep the main part of the strategic reserve outside this country. This, of course, raises the question of what the reserve is for. For many years expert opinion and official policy have both favoured the creation of a central strategic reserve, even though little could sometimes be done to implement the idea. Nowadays, the reserve is not primarily required to reinforce a British Army on the continent. Its main task is to be available for deployment overseas in the Commonwealth, and for this purpose the troops need to be instantly available. Admittedly, in terms of modern transport to treat German territory as an extension of the home base would not present insuperable administrative difficulties. But it would almost certainly create a sufficient number of political and psychological problems to make a military nonsense of the position as a whole. . . .

A Continental Army?

At one point in our discussions, the interesting suggestion was made that Britain might now have a specially self-contained 'Continental Army' rather like the 'Indian Army' of the old days – except, of course, that it would play no part whatever in any country's internal affairs. The idea was put forward on grounds of administration and training. Training problems do in fact make it more difficult to move troops suddenly from a continental European role to the type of duty for which they are usually required in such areas as South East Asia, the Middle East and Africa; however good a soldier's basic training may be, his unit will always have to give priority at any particular moment to training for the one special type of warfare for which it is earmarked. It was suggested that this 'Continental Army', as distinct from other British

troops, should be given special training in both nuclear and non-nuclear large-scale warfare, in order to fit it to play its part in the deterrent against direct Soviet action. In other words, it should be trained to defend Europe against the Russians, while the rest of the British Army would be primarily trained and equipped for action overseas, almost certainly on a smaller scale and probably without the use of nuclear arms.

For a number of reasons, however, most of us did not favour this view. We felt that it raised as many difficulties as it set out to solve. For one thing, it would mean certain individuals serving at distant points overseas for unduly long periods; and, for another, it would in practice seriously limit the reserve of personnel suited both for service in Germany and for overseas. Moreover, we felt that, in spite of the difficulties of training troops for such highly contrasting conditions as those in Europe and overseas, it should not be forgotten that not only are there primary principles of training and discipline common to all forms of military activity, but there is also a certain degree of similarity between training for mobile skirmishing operations and training for tactical atomic warfare. It was Field Marshal Sir William Slim who commented that the tactics adopted by his forces in Burma were not unlike those that would be required for atomic war. In both, the essence of the situation is that troops are likely to be cut off from direct land communications with their bases, and the main problem in such instances is apt to be the question of maintaining the right morale.

The aim must therefore continue to be to build up the Army's strategic reserve in Britain, and with an all-professional force efforts must be redoubled to give more than one type of training to everyone. We recognized, nevertheless, that this problem will probably never be settled altogether. There will, for instance, have to be troops increasingly trained for such highly technical and specialized purposes as firing Thunderbird or Corporal or other missiles, and, if some of these men were wanted for emergency service in, say, Kenya, they would presumably have to leave their equipment behind; in that event retraining would be essential and they might not take to it at all readily. Another exception is that of certain types of armoured unit. Their equipment is suitable only for the set-piece kind of European battle, and they will in the ordinary way spend the bulk of their service in Germany. But each of these problems represents a special case and has to be dealt with on its merits.

The truth is that the British Army has a tremendous job in front of it. The modern revolution in tactics and strategy, which still continues and will undoubtedly continue at the same rate for many years yet, places a higher premium than ever on efficiency, and on the need for recruiting the right sort of man to begin with. Although the relative decline in the effectiveness of Britain's forces on the continent has been largely due to factors outside their own control, the nation cannot afford any further unnecessary delay in putting things right. Fortunately there is a golden opportunity with the concentration on a professional force and with the drastic re-equipment now taking place. But there is still a long way to go, and the Berlin crisis of 1959 has been further proof that there is a many-sided challenge which must be met. . . .

Summary of Conclusions

1. The nuclear stalemate increases, if anything, the likelihood of lesser military action in various parts of the world. To prevent such conflict spreading requires efficient Western forces at each possible scale of operations, whether with or without tactical atomic weapons.

2. For this purpose, Britain and its allies in the Commonwealth must contribute to the general Western aim which should be to achieve something like parity with the Communists at each of the three levels of force: (*a*) in terms of major thermo-nuclear power; (*b*) in terms of tactical atomic warfare; and (*c*) in terms of a conventional engagement of limited size and localized area.

3. In spite of all the changes brought about by the nuclear age, Britain's first priority is its commitment to help defend Western Europe under NATO, and as agreed in the Protocol of 1954 to the Brussels Treaty of 1948.

4. Although this Report is about the Army, its problems and its needs, the interdependence of all three services – Army, Navy and Air Force – must be regarded as an absolutely essential background to success. This holds especially true in the concept of land/air warfare, and in

the dependence of overseas expeditions on the security of sea and air communications.

5. For Britain to play its part in all these circumstances the British Army must be made as effective as humanly possible. It will require to be trained in both a conventional and a nuclear role.

6. The British Army is unlikely ever again to form the basis for a rapid expansion in a period of world war. Warfare of that scale must now be envisaged as nuclear warfare. Even if this is not brief, it will require highly trained smaller forces than the citizen armies of the last two world wars.

7. Today, if continental Western Europe were overrun, the hope of salvaging the United Kingdom from the ruins would be almost negligible. This means that home defence needs no specific allocation of the British Army's resources.

8. All this implies that the abolition of conscription is the right policy. Conscription is an exceedingly awkward way to run an Army. The return to an all-Regular force is to be welcomed as a contribution to greater efficiency. In particular, it will improve morale throughout the Army.

9. In the circumstances of today, it is not contemplated that the British Army should ever be committed to fighting against a major Communist power without having the Americans as allies.

10. The British Army is unlikely to use tactical atomic weapons except in alliance with the Americans.

11. The British contribution to SHAPE is critical. Without it, present NATO defence plans would collapse.

12. It is therefore particularly unfortunate that British formations in Europe are under strength and under-equipped. It is vital that the re-organization now envisaged should put these defects right as speedily as possible.

13. A more efficient British contribution is also of great political importance for Britain's position in Western Europe as a whole.

14. The minimum strength of Rhine Army should not fall below 55,000 men. This is already so low that it barely carries out the letter of our present undertaking. To reduce it further would prevent Britain fulfilling even the spirit of the minimum role assumed within the NATO framework.

15. If the deadlock over the Common Market continues, it may well become much more difficult financially to keep even the present British forces in Rhine Army.

16. It would be dangerous to assume that, even if military operations were started in Europe, tactical atomic weapons would necessarily be used, at any rate in the first instance. There appears to be an over-reliance on the factor of tactical atomic weapons in the present plans of SHAPE. From the point of view of the British Army, while it is essential to build up the supply of tactical atomic weapons and to carry out training in tactical atomic warfare, this is reducing the conventional fire-power available to any given formation, and the danger of carrying this process too far must be recognized. All these factors emphasize the tremendous importance both of mobility and of training. Moreover, both these factors are further enhanced by the British Army's commitments overseas, elsewhere than in Europe.

17. In spite of some arguments in favour, it would be a mistake to station Britain's strategic reserve in Germany. As large an element as possible of the strategic reserve should be retained in the United Kingdom. Ideally, the only qualifications to this general principle are that troops must be stationed overseas (i) as an aid to the civil power; (ii) in order to become acclimatized to local conditions, psychologically and politically, as well as physically; and (iii) where possible, in order to maintain some element of military strength at a state of readiness beyond the land/air barrier of the Middle East.

18. At least half the British Army must be held available to meet emergencies overseas; the remainder must be regarded as committed to Europe. The British Army consequently needs to be more strategically mobile than it has ever been before.

19. As a result of the development of air transport and the greater reliance which is being, and should be, placed on it, larger stocks of equipment need to be built up at carefully chosen strategic points overseas. On the other hand, there are severe limitations to this policy and it must not be pushed too far. There are dangers, for instance, of guessing wrong and of having the wrong material at the wrong place at the wrong time.

20. It is more than ever essential to co-ordinate the policy of developing air transport with the continued carriage of heavy equipment

by sea and the establishment of stores depots overseas. In this respect, progress should be hastened wherever possible in limiting maximum loads to ten tons each, both for sea and air transport.

21. In air transport, 'the realizable aim in the early future should be to be able to move a brigade group to the Far East in seven days'. Owing to the land/air barrier imposed by the Arab countries of the Middle East, efforts are required to ensure the availability of alternative routes. These lie via Turkey and Persia to the north, via central Africa to the south, and westwards from Britain across Canada.

22. It would greatly help in the solution of this problem if the existing decision to retain a small Army reserve in Kenya, as well as a Royal Air Force base, were fully implemented.

23. Owing to the time which is bound to be taken before the latest types of British jet and prop-jet transport aircraft become available in adequate numbers, there is a case for considering as a temporary expedient the possible acquisition of a number of second-hand, four-engined American transport aircraft, now being made surplus by the introduction of jets.

24. A high priority should be given to the development of vertical lift aircraft of all types, but particularly jets (VTOL). The Army is lamentably short of helicopters, a failing to which the most urgent attention should be directed.

25. The transport of soldiers by sea, when required, should be by civilian ship so far as possible. Obsolete aircraft carriers, while they have performed invaluable services during the past few years, have many disadvantages, and it is not felt that their scrapping under the Navy's present retrenchment programme should be halted.

26. A strong case can be made for building a new Amphibious Warfare Squadron. This should be done in the interests of the Army, and there should be a careful review both of the types of ship needed and of the ultimate manning, and source of command of these vessels.

27. All equipment must be related to the prime need of mobility. Faster progress should be made in reducing separate 'loads' to a maximum. More and better signals equipment is indispensable.

28. New ideas about equipment must be put into effect more quickly. The present period of roughly ten years from the stage of the new idea to unit use is too long.

29. It is in the West's fundamental interest to spend a great deal of money on research in order to find an antidote to the tank. It is not yet clear what the role of the tank is going to be on the future battlefield since anti-tank gunnery has greatly improved since 1945. But short-range guided or homing missiles also offer new possibilities which must be explored to the full, since the electronic revolution has made radical changes in this field.

30. For overseas use, a strong case exists for developing the armoured car as a 'light tank'. Both the Saladin and the Ferret should be employed to the full. There is much need of a satisfactory armoured personnel carrier.

31. There is little possibility of seriously expanding Britain's manpower by recruiting African forces.

32. The Brigade of Gurkhas should be fostered and trained for infantry warfare of all kinds. There is a case for moving them by stages from Malaya to Kenya for training, though this should be done without prejudice to Kenya's own political future.

33. The differential between the pay of officers and other ranks is now too small at the point where the two scales meet. If more officers are going to be attracted into the Army, they will certainly have to be paid more. In order to attract the right type of young man, there is a case for increasing the rewards to the higher ranks as well.

34. In order to tackle the problem of providing an adequate outlet for those officers who, while needed in the lower ranks, cannot look forward to promotion in the higher ranks, a modified pension scheme for officers after fifteen years service should be tried. This would have as its object the release of officers from the Army at an early enough age for them to be able to compete successfully for jobs in other careers. If it is to achieve full efficiency, the Army must somehow solve this problem of reducing more satisfactorily, and in accordance with modern conditions, the numbers of officers retained in the service as they move from the broad base of the pyramid towards the apex of the higher ranks at the top, It would be worth examining the possibility of introducing short service commissions on the analogy of the Royal Air Force. Only by adopting new ideas of this sort can the Army be made the happy and effective place that it ought to be.

This We'll Defend

General MAXWELL D. TAYLOR

Extracted by permission from
U.S. Army Information Digest, August, 1959

The following extracts are taken from General Taylor's final formal report to the Secretary of the Army on retiring from the post of Chief of Staff of the United States Army on June 30, 1959

ALL NATIONAL DEFENCE efforts have significance only in relation to the threat to which they respond. In the past two years and today, the principal threat to world peace and U.S. national security has continued to be the expansion of ruthless international Communism. There has been no reduction in the global extent of this threat confronting the United States and the community of free nations. Rather, the threat has been intensified by the political instability and susceptibility to penetration in its various forms of small nations and political groupings adjacent to the Communist complex of power. Coupled with this has been the continued remarkable revolution in science and technology, which has served not to insure the prospects of a peaceful world but to disturb seriously the world balance of power – in some instances to the possible advantage of the Sino-Soviet hegemony. . . .

The new dimensions of the military threat derive largely from the implications of Soviet progress in two related areas: the development of intercontinental ballistic missile systems to supplement their long-range bomber force; and the acquisition of a strategically significant stockpile of nuclear weapons. To assess their true significance, these major developments must be viewed within the entire range of the military capabilities of the Communist bloc.

The U.S.S.R. has expended vast resources in improving its military forces. Its army has been re-equipped with all types of modern weapons for ground combat, to include a wide variety of mobile atomic missile delivery systems and large tactical air armies. The Soviet navy has developed a formidable submarine fleet, and the existing Soviet long-range bomber force makes possible a significant air attack on the continental United States. Concurrently, extensive missile air defences are under development around the key centres of the Soviet Union in order to lessen their vulnerability to air attack. At the same time, the U.S.S.R. has provided great quantities of late model materiel, aircraft, and technical assistance to the countries of the Communist bloc. This has enabled Communist China and North Korea to maintain massive, relatively well-equipped ground and tactical air armies and has strengthened the military capabilities of the European satellite states. Additionally, Soviet military assistance and materiel furnished to various ultra-nationalist groups in unstable areas has furthered the Communist potential for covert aggression as a means of attaining political objectives. . . .

The Balance of Terror

The close relationship between military strength and the political policies of the Communist bloc – the Soviet Union in particular – is clear. With the growth of their military and atomic capabilities there has been increasing Soviet intransigence in international relations. . . .

Since World War II, the United States and its allies have had preponderant strength in the air-atomic field, and this condition has been the underlying premise of both our national military posture and the military planning connected with our international defensive alliances. However, during the period covered by this report, the Soviets have improved their nuclear capabilities so as to at least approach a condition of atomic parity with the Free World. This condition – sometimes referred to as 'the balance of terror' – taken in conjunction with the other forms of Communist military power, clearly shows the need for a serious re-examination of our national military strategy as a component of national policy, and the balance of the tri-dimensional military forces necessary to make that strategy effective.

Recent events are evidence that the Soviet-led bloc has exploited the world's fears of a general

atomic war to its advantage. This has been accomplished by continuing Communist military and political aggression for limited objectives. Aggression of this nature has not been successfully checked by the massive retaliatory capabilities of the United States. The Communist capabilities for the continued employment of this technique of aggression under the balance of terror will probably cause serious questions to be posed as to the proper responses which the United States must make to deter war in all of its forms.

The Deterrence of War

The national policy for the deterrence of war has been fundamental in shaping the philosophy and actions of the Army. However, it is the Army's view that deterrence must take place at two integrated and concurrent levels of effort. These are: the deterrence of general atomic war, and the deterrence of limited war – the piecemeal aggression which, if not successfully curtailed, could seriously erode our national position.

In addition, should deterrence fail – either by design or by a miscalculation on the part of a potential aggressor – the United States must possess an integrated range of military means appropriate to respond to the nature of the threat. The quality and quantity of these forces must be such that they can present for the indefinite future a balanced and stable deterrent in a high degree of readiness for any form of war. This must be coupled with effective systems of warning and decision-making.

Those elements of the integrated deterrent devoted primarily to the deterrent of general war must be so organized, equipped, trained, and deployed that they can endure an enemy first strike and retaliate on the centres of enemy power with a level of damage unacceptable to him.

Those forces especially suited for the deterrence of limited war – or effectively combating it before it can spread into a general atomic war – must be capable of rapid employment within a wide spectrum of military operations. These may vary in intensity from small patrol actions to major, sustained combat operations of considerable duration and scope. Moreover, these forces must also be capable of reinforcing general war operations, if, despite all efforts, deterrence in this area fails.

The fact that the United States has deterred general war since 1945 but has become involved in varying degrees in six limited conflicts during this spread of time – mainland China, Greece, Korea, Indochina, Lebanon, and Taiwan – has led the Army to take the initiative in pointing out the imbalance in our military posture of deterrence. Further, in the light of the increasing frequency with which limited wars have occurred during the past fourteen years, the Army has made repeated recommendations to appropriate authority as to the courses of action viewed as essential to correct that imbalance.

Among the more important of these recommendations was the proposal that the higher levels of the Department of Defence and the Government consider the requirement for integrated deterrent strength horizontally – that is, in the context of functional, operational forces – rather than from the traditional vertical viewpoint of the compartmented, departmental structure of the Army, Navy, and Air Force. These functional operational forces would include the following:

First, a powerful atomic retaliatory force, visibly capable of destroying any aggressor who initiates a general war. This force is a composite of strategic means of the Air Force and Navy, comprised of both aircraft and missile delivery systems. For maximum deterrent effect, this offensive force must be guarded against surprise attack. It needs a defensive counterpart which is represented in the second category of forces – those involved in the air defence of the continental United States. These are composed of the interceptor aircraft of the Air Force, the surface-to-air missile units of the Army, and are supplemented by the Navy and our Canadian allies.

The third essential category of our functional deterrent forces are overseas deployments – those forces which are a shield impeding further expansion of Communism on the ground. These forces are of important military significance, not only in providing defensive strength in important strategic areas, but as a source of encouragement to United States' allies. The sight of American fighting men in the villages and cities along the Iron and Bamboo Curtains is a day-to-day reminder of the United States' intentions to stand by its international obligations. The overseas deployed forces are thus visible evidence of our national determination to

carry out fully our responsibilities for mutual security.

To back up these forces, there must be the fourth category – strategic mobile reserves of all Services to assist the overseas deployed forces if they are attacked, or to move quickly to other areas of the world threatened with Communist aggression. Important elements of this strategic reserve strength are the civilian components which provide a cushion of strength for the active forces and the mobilization base necessary to support the strategic reserve forces in combat.

Finally, as a fifth category, are air and naval forces capable of keeping the air and sea lanes open for the deployment and support of the other categories of forces in the event of war, so that our strength can be brought to bear in timely manner at the decisive place.

Coupled with such an analysis of the force requirement for an integrated deterrent, the Army has recommended that the Joint Chiefs of Staff undertake to establish criteria of sufficiency in each category of such operational forces. Such action would insure that the various programmes and weapons systems of all the Armed Forces are brought into focus with the changing nature of the threat, and would allow a more balanced distribution of the resources devoted to national security and the deterrence of war.

In keeping with these proposals, the Army has also recommended a programme for improving the capabilities of the Army and its sister Services to deter and meet effectively the continuing challenge of limited war. The salient points of this programme are: (1) modernization of the equipment of forces appropriate to limited war; (2) improved strategic mobility of limited war forces to include overcoming related logistical obstacles; (3) predesignation of the air and sea transport to move selected spearhead forces; (4) expanded and centralized joint planning and training; (5) publicizing our capability to deter or fight limited wars. . . .

Army Missions and Tasks

The overall missions of the Army for the period of this report have been to contribute to the security of the Nation by providing adequate forces for prompt, sustained combat on land in any type of war and to furnish surface-to-air missile defence of the United States and our forces overseas. The extent of the Army's contribution stems from the agreed strategic concepts which guide the plans and programmes for all the military services. From this broad mission were derived the principal tasks of the Army. These are: *first*, to maintain forces overseas for the deterrence of aggression or for effective resistance to aggression if deterrence fails; *second*, to maintain mobile, combat-ready strategic forces in the United States for the rapid reinforcement of forward deployed forces, and to come to the aid of allies in areas where no U.S. forces are now deployed; *third*, to provide forces as required for the defence of the United States against air attack; and, *fourth*, to maintain a base for rapid mobilization, including strong, ready civilian component forces. . . .

The ability of the United States to strike back adequately after an enemy first strike provides the only sure deterrent to general war; therefore, it is essential that we defend adequately our retaliatory capability. Unless an effective defence against surprise attack is in being, the retaliatory forces may be destroyed in large measure on the ground. Even if our bombers are able to leave their bases prior to the initial enemy attack, these bases must still be defended to provide the planes with a place to return. Otherwise, the Strategic Air Command will be a one strike force. . . .

The Challenge Ahead

Although the Army has achieved significant success in some areas, there are important unresolved problems affecting the internal development of the Army and its role in national defence. They include:

1. The achievement of a properly balanced national military strategy.
2. The determination of yardsticks of sufficiency for all categories of forces required to support this balanced strategy.
3. The development of a budget-making process which will assure that funds are allocated in consonance with the true needs of this strategy.
4. Acceptance of the role of the Army in the execution of this strategy, together with the allocation of the necessary means to perform this role.
5. A better understanding of the Army's tasks in air defence and the urgency of its Nike-Zeus programme.

The requirements for our future security derive from the growing aggressiveness of the Sino-Soviet empire in international relationships and its deliberate disregard for international hopes for peace. It appears likely that the Soviets will keep the world in a state of tension. Because of the tremendous leverage which the Communist block is capable of exerting by the application of massive military power, the U.S. must maintain armed forces in being capable of offsetting this power.

As the nature of this threat is dynamic so must the outlook of the Army remain dynamic. To contribute effectively to the national efforts to meet this threat, the Army must seek not merely to keep apace, but to anticipate its changing nature. With this objective in mind, the following broad courses of action by the Army are considered necessary if it is to make its needed contribution.

A Properly Balanced Military Strategy

First, through all proper channels available, the Army must continue to press for a change in the underlying premise of our national military strategy from the strategic concept of massive retaliation to one of flexible response, based on a wide range of integrated, balanced military strength.

Yardsticks of Sufficiency

A major element in achieving a properly balanced military strategy would be the determination by the Joint Chiefs of Staff of the kinds and quantities of operational forces necessary, based on agreed yardsticks of sufficiency. Such a determination and the resultant rational force structure would have many significant advantages. The determination of how much is enough in each category of force should increase our visible, ready deterrent strength without a marked increase in overall Defence expenditures, as a result of a more balanced allocation of fiscal resources in keeping with a strategy of flexible response. All services and functional forces would assume a form and size appropriate to their missions and tasks. Excesses would be eliminated and deficiencies filled in the aggregate force structure.

To make effective such a revision of strategy and determination of forces, the Army must continue to press for a fundamental change in the present inflexible pattern of the Defence budget which annually allocates some 70 per cent of available resources to preparations for deterring or fighting general war. A rational Defence budget-making procedure, based on a horizontal analysis of the categories of functional operational forces, is considered to be an important first step towards a better use of defence assets.

Essentiality of Army Missions

Success in battle is achieved by the proper combination of firepower, mobility, communications and personnel. History has shown the fate of armies of the past that failed to obtain the combination of these characteristics necessary to defeat the enemies they were called upon to face. This consideration relative to the threat of today and the future, lends emphasis to the need for a better acceptance of the essentiality of the missions of the Army in the execution of a balanced military strategy, and the allocation of the necessary means to discharge these missions. Such an acceptance would support the need for an orderly, financed equipment modernization programme for the Army. This is vital for the two-fold purpose of increased effectiveness of the active Army and high priority ready reserve units, as well as overcoming the growing obsolescence of the current Army equipment inventory.

Army modernization objectives should seek essential improvement in terms of the characteristics mentioned above, discussed as follows:

Production is required of the second generation of Army surface-to-surface missiles which have been developed to improve Army firepower. These missiles should provide better performance characteristics, reliability, lighter weight, and greater versatility. In addition to improved atomic components, if appropriate, they should be furnished with improved high explosive, fragmentation, and chemical warheads. Ground-gaining combat units will continue to require close-in direct support fires of greater efficiency and battlefield adaptability. From this stems the requirement for the close-range sub-kiloton atomic weapons as well as new non-atomic close fire support means to supplant obsolescent types of conventional tube artillery.

At the point of contact with the enemy, the rifle, machine gun, and mortar remain the basic

tools of close combat. The lighter, more efficient types which have been developed should be produced more expeditiously in order to replace the numerous World War I and II weapons now in the hands of troops. These improved weapons will not only increase the battlefield effectiveness of small units, but will pay added dividends in the simplification of small arms logistics in the forward combat areas.

In addition to the need for improved means of strategic mobility required from the other Services, continued improvement of the Army's tactical mobility on the modern battlefield remains essential to the rapid manœuvre necessary to bring firepower and the decisive effect of close combat to bear at the critical point. Wheeled, tracked, and aerial vehicles – with greater range, economy of operation, and reduced maintenance – have been developed and are urgently needed in our troop units.

The desire for aerial vehicles does not mean that the Army contemplates duplication of any of the missions performed by the Air Force or the establishment of an air arm for the Army. Rather, these vehicles are the organic means which the Army should have to overcome obstacles to effective ground manœuvre and reconnaissance, and they are a necessity when operating against numerically superior forces. From the standpoint of close ground combat, the protected mobility and firepower afforded by improved tanks and armoured carriers becomes most significant with respect to manœuvring through the fireswept or nuclear contaminated areas of possible future battlefields. Production of a new family of armoured vehicles having lighter weight, greater killing power, and reduced logistical demands is an essential requirement for the future.

Flexible and responsive communications constitute the nerve system of command. For the future, the Army must focus on greater versatility of communications systems at all levels.

Closely allied with Army objectives in the firepower field, and the increased tempo of operations attainable through improved mobility, is the imperative requirement for all-weather, 24-hour surveillance and target acquisition means. Without such means, our longer range modern weapons can be rendered relatively useless against enemy targets dispersed in width and in depth. As a result of intensive research and development effort, there are in sight many of the items required for such systems but, again, procurement lags behind the need and requires new emphasis.

The foregoing discussion of Army modernization objectives should not imply that the Army does not continue to regard its people as its most valuable asset. This recognition of the importance of the human factor must continue into the future when new and complicated weapons, employed in a strange and demanding battlefield environment, will impose greater demands on the soldier than ever before. Thus, the established trends towards improved quality in the Army's people must be continued and intensified.

The Army's Role in Air Defence

There is a pressing need for achieving a better understanding and acceptance by the other Military Services, the public, and the higher levels of government, of the nature and importance of the Army's role and capabilities in the air defence field. These are based on the proven performance of operational Army surface-to-air missiles and their established capabilities against all foreseeable manned or unmanned air-breathing threats against the United States at all possible altitudes of attack. Moreover, in the light of the probable Soviet long-range ballistic missile capability of the near future, full support should be sought for the Nike-Zeus. As the Nike-Zeus is the only antiballistic missile weapons system under development, its early deployment is of vital significance if the United States is to maintain the effective defence essential to the deterrence of general war. Further loss of leadtime in the production of this system could result in consequences of grave import to the Nation.

Although this report has concerned itself only with the state of the Army, full recognition is given to the tri-Service character of our national defence. In the words of President Eisenhower: "Separate ground, sea, and air warfare is gone forever," and the Army supports this view without reservation. The national security requires military strength in being on the ground, on the sea, and in the air, capable of coping with the wide range of possible challenges with appropriate forces and weapons. The Army faces the future resolved to play with competence its essential part in this tri-Service effort.

The Future of the Submarine

PAUL COHEN

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THE ABILITY of technology to alter the international balance of power was mentioned recently by no less a commentator than Nikita Khrushchev, who declared in a note to President Eisenhower that the 'heyday of surface navy power is over. In the age of nuclear and rocket weapons . . . these once formidable warships are fit for nothing but courtesy visits, gun salutes and as targets for . . . rockets'. Surface ships are, in fact, fit for these functions, and for a few more which submarines are still not ready to fill adequately. Yet it is true that the submarine is already playing a far more important role in sea power than it has in the past; and it is likely to become the dominant naval vessel in the future.

The principal reason for the submarine's rise to prominence is its sudden emergence as a device for strategic bombardment. This development is the result not of any new property of the submarine but of a combination of technological advances in other fields. One is the creation of relatively light nuclear warheads; the other is the overall advance in the guidance and propulsion of long-range rockets – particularly the development of efficient solid fuel propellants having large thrusts. The marriage of a relatively simple, nuclear-armed missile to the most stealthy and hidden of naval craft has created a new threat to the world's populations – the ballistic missile submarine.

Submarine Limitations

The submarine's new capability should not, however, blind one to its limitations, which recent developments such as nuclear power plants and new inertial navigation devices have not removed. If the submarine is to be considered as a major naval vessel rather than an auxiliary, then it must establish its ability to carry out a wide variety of military tasks. The variety of missions which a modern navy may be called on to perform is reflected in the multitude of vessel types it possesses. That submarines have relatively few types is an indication that they have not as yet taken over many naval roles, although there are signs of proliferation. Except for such boats as were available at the outbreak of hostilities, we fought World War II with one type of submarine – the 1,500-ton 'fleet boat'. Today, the nuclear equivalent of the fleet boat displaces about 3,000 tons, and from it

has evolved an entirely new and much larger form – the ballistic missile or Polaris boat. There are re-occurring attempts to build a specialized (and small) anti-submarine submarine, one form of which is our SSK (submarine killer), displacing 765 tons.

Clearly, the submarine is not expected to develop the capabilities of all other naval vessels. But in each of its roles – present and potential – it faces the handicap of inadequate means of communication. The ability of surface ships to work in concert with each other and with aircraft, guided by excellent communications of great capacity, is not yet paralleled by equivalent sonic techniques fit for submarine use. Little has appeared to indicate that the co-ordination of submarine wolf-packs or of submarine-surface teams would be much easier today than was the case in World War II. And an underwater missile launcher is of no value if it cannot be reached with the order to fire. Submarines do not lend themselves easily to convoy duty, and it is hard to picture them as efficient in anti-aircraft operations.

One could be much more condescending towards the submarine, in view of its many limitations, were there any certainty that in an all-out war surface ships would remain alive long enough to carry out their functions. But since this is not the case, submarines may be asked to undertake tasks for which surface vessels are inherently better suited – except for their vulnerability.

Meanwhile, the submarine retains unequalled capabilities as an instrument of attrition and blockade. In forms of war where nuclear weapons cannot be used, its really overwhelming ability to destroy surface ships would be unmatched. The point has often been made that ocean commerce is the cement that binds the Western Alliance together. Even the greatest of sea powers cannot survive the steady attrition of its cargo carriers, let alone its military vessels. Here the advantage lies all with the Soviet Union, which has a vast superiority in numbers of submarines and is not itself dependent on surface shipping to sustain its alliances.

But submarines can blockade submarines as well as surface ships, and this is a tactic to which Russia is quite sensitive. Whether it would be feasible to blockade all of the European coast and all of the eastern shore of Asia is another matter. During World War II, our submarines sank about 22 Japanese submarines and two German U-boats as an incidental to their other duties. With much improved sonars and somewhat better weapons, and with submarines a major rather than a minor objective, the score could probably be more impressive. Once the location of a submarine is known rather precisely, it is quite vulnerable; the problem is to find it in the first place and then to assemble the forces to track and destroy it.

In addition to their role in anti-submarine warfare, submarines also make good mine layers; and they are suitable for all sorts of odd jobs such as rescue and scouting missions.

It is rather futile, however, to speculate on how the submarine will be used tactically in a war of unknown rules and in an era of rapidly changing technology. It may be more useful to discuss its essential properties and the nature of its environment as a means of assessing its probable future role.

The 'Cloak of Invisibility'

The submarine's main defence continues to be its ability to submerge and thus hide from its enemies. This 'cloak of invisibility' is its sole armour, for it is among the most vulnerable of ocean-going vessels. If its inner (or pressure) hull is breached, it has little chance of ever surfacing again.

The sea, however, is an excellent hiding place. The sonars of World War II destroyers, for example, could at best pick up a submerged submarine only a few thousand yards away. Because salt water is a conductor of electricity, electro-magnetic radiations of virtually all wavelengths are, for all practical purposes, barred from effective use. In fact, visible light will penetrate about as far as any practical wavelength; and even in the clearest water the range of light is but a few hundred feet. Sound, therefore, remains the primary means of sensing below the surface. Although there has been much progress since World War II in the application of sound as a method of detection, it has been accomplished with the aid of increasingly large and complex equipment. It would be optimistic to describe these advances as breakthroughs. The sea contains non-uniformities, such as temperature and salinity gradients; beneath these layers the submarine can hide, screened even from the sonars.

But though the submarine is hard to find, it has in the past been handicapped by a grave loss in performance when submerged. Until the closing days of World War II, a submerged boat could do no more than seven or eight knots. At that pace its underwater endurance was about an hour; at best, it could stay down about a day. The main difficulty was the inadequacy of the energy supply. When the diesel engines of a submarine are running they can exhaust the air inside the closed hull in a matter of seconds; this makes it impossible to use them or any air-consuming reaction to generate power when the submarine is submerged, except by the limited expedient of snorkeling. Energy had to be obtained when the boat was surfaced and stored in electric batteries for later use. When driven below by enemy destroyers, submarine commanders would resort to every possible means to conserve energy, such as turning off motors in their refrigerating and ventilating systems, or even turning off lights. But eventually, a surface vessel that maintained contact with the submarine could slow it down and kill it.

The hard-pressed Germans, who depended most heavily on the submarine, developed some of the clearest thoughts regarding its design and use. Late in World War II, they exploited the existing means of propulsion to the utmost on their famous Type XXI design. These boats could do over 15 knots submerged, for about an hour. This was accomplished by doubling the amount of battery capacity and by streamlining the hull, stripping the deck of its bristling array of heavy and light guns. The Type XXI had a snorkel so that its diesels could operate with minimum exposure of the submarine to visual or radar sighting. Fortunately for the Allies, the war ended just as this submarine started its patrols.

The performance of the Type XXI was, of course, an improvement in degree, not in kind, though it was sufficiently remarkable to attract imitation by those powers which had enough strength left after the conflict to continue with a naval building programme. The new models continued to be closely tied to the surface and were still grossly inferior to surface craft in endurance.

Such was the past. With the launching by the United States of the first nuclear-powered submarine, the *Nautilus*, an irreversible change occurred in naval warfare. It gave the submarine an advantage which the application of nuclear power to surface ships cannot redress. Although surface vessels will acquire tremendous benefits from the use of nuclear power, the unique ability of the reactor to produce heat without using oxygen is not one of them. But it is of vital importance to the submarine. The surface craft always had virtually unlimited endurance. Now that the submarine also can have unlimited endurance, the advantage shifts in its favour. For, while both employ the same sensing devices, the submarine retains its invisibility and its ability to locate the surface ship before that vessel is alerted. As far as visual means are concerned, the reasons are obvious. The periscope, which is from two to five inches in diameter near its top, and sticks out of water only five feet or so (or, on occasion, as little as a foot), is a much smaller object than a vessel and is hard to spot by eye or radar in rough water. As for sonar, submarines can be made quieter than surface vessels. For hydrodynamic reasons, a sonar dome itself gives off more noise the closer it is to the surface. Most important, the submarine can vary its depth, finding the optimum location for its sonar in the complicated and changing stratification of the ocean.

Nuclear Propulsion

Nuclear energy has cured, or greatly alleviated, not one but two of the submarine's greatest weaknesses as compared to surface craft. Until now it not only has been limited by its energy supply but has also had the unenviable distinction of being the most inefficient load carrier that goes to sea. Its pressure hull, tanks, engines and various internal appurtenances weigh so much that it has carried a ridiculously small payload. Armed with chemical explosives, then, it could not be a serious threat to land targets, for it would exhaust its ammunition before it had made more than a small dent in a really large or 'hardened' target. The purpose of the three-inch deck-mounted gun which most submarines formerly carried (a few have carried much heavier weapons to no good purpose) was to sink small, undefended vessels and thus spare the use of a valuable torpedo.

With all its limitations, the submarine of the past was deadly when it could attack shipping unobserved. Against large and technically competent surface forces, German U-boats almost

stopped the Allies in two separate wars. In the war against Japan in the Pacific, our submarines operated against a navy which failed to produce a top-flight defence and as a result they bled the Japanese Empire to death. After the war, the Japanese Government gave as the basic cause of its defeat the loss of its merchant fleet. Even so, we lost more than 50 submarines in the Pacific, in World War II, perhaps half to direct enemy action. The Allies, in breaking the back of the German submarine effort, sank some 700 U-boats.

The Missile Submarine

Today nuclear energy has made the submarine infinitely more dangerous. The concentration of destructive power in a small warhead has entirely altered the hitherto small 'carrying' capacity of the submarine. One submarine today can carry enough explosive power to devastate the entire coastline of a continent. A fleet of submarines, even crudely deployed, can ravage a great power in one salvo.

Thus at the same time that nuclear energy has made surface ships more vulnerable, it has made submarines more mobile, more flexible and more destructive. Their longer range now gives them an increased, and increasingly important, ability to enter waters denied to surface ships by superior air, submarine or even surface power (and, it may be added, by climate). At the moment, the United States Navy can choose to disregard enemy surface power as a factor, but there was a long period after Pearl Harbour when our submarines were the only American vessels able to operate in the reaches of the western Pacific controlled by the Japanese. As air-to-surface missiles of greater range and accuracy are developed, large areas of ocean adjacent to lands controlled by a strong enemy will be denied to our surface navy. Okinawa offered a foreboding example of what air power can do against surface fleets. And nuclear-armed, supersonic missiles homing on a target are much harder to knock down than the Japanese suicide planes of World War II.

Finally, the voyages of the *Nautilus* and the *Skate* under the Arctic ice-cap indicate that even this ocean, which gives the shortest routes between North America and Eurasia, is potentially open to the submarine for military purposes, for the supplying of bases, and perhaps for trade. More than 60 per cent of the Soviet Union's maritime frontiers are in the Arctic. The Arctic routes which lead into the Bering Sea, however, present severe navigational problems. The waters north of the Bering Strait are shallow, in general less than 200 feet deep except for one small valley. To get under or leave the ice-cap on the Alaska side can be something of a feat.

From the point of view of the Western powers, the most disturbing fact of geography as it relates to the submarine is that every one of the major nations except Soviet Russia has the bulk of its urban population within 200 miles of tidewater. And where people are concentrated there also are the major industrial plants, the transport and communication centres, the research and development groups, and many of the military installations – in short, the vitals of the economy. Using 1950 population figures, we find that missiles of 150-mile range, fired from just outside the nearest unblockable tidewater, would cover 78 per cent of the urban population of Europe and 55 per cent of that in the United States, but only 13 per cent of Russia's. However, a 1,200-mile missile could cover virtually all the urban centres on the Soviet Union if the launching areas were optimally deployed. In other words, while a 200-mile missile launched from submarines is a grave threat to Europe and this country, a longer range missile (but one well within the bounds of present technology) is needed to create a similar threat to the U.S.S.R. Since at any given stage of technological development higher accuracy can be achieved at shorter range, the advantage will remain to some extent with the Soviets.

This close relationship between range and accuracy is one reason why the inter-continental missile will not lessen the importance of the submarine as a missile carrier. In the future as in the past, the ability to hit a specific target accurately will confer a fundamental military advantage. But much more important may be the ability of the national economy to survive the first strike. Even if land-based launching sites can be simplified and partially concealed, they can be located by the enemy at leisure and long-term plans can be laid to neutralize them. The ability of the missile-launching submarine to escape detection provides better protection than the thickest concrete. And though land-based missiles can also be made mobile, they cannot achieve the

flexibility of the submarine, which needs neither roads nor rails. Finally, the submarine combines high mobility with some degree of protection from the sea itself. Surrounded by water on every side, it is remarkably well shielded from any immediate effects of fall-out or from thermal and radiation effects of nuclear explosions.

A further consideration in assessing the value of the submarine as a missile launcher is that it is free from political limitations. No elaborate treaties are needed in order to place Polaris submarines on the high seas, and their use can remain within our own control without becoming elements of discord in the domestic politics of other nations.

The Speed Factor

One important property of the submarine has not yet been exploited – its capacity for speed. Potentially, the submarine can be made faster than surface craft which must use the displacement-type hull (as opposed to hydrofoil, which is currently impractical for large ships). A surface ship, operating between water and a much less dense medium, air, must throw up waves as it moves. At low speeds, this does not involve an important loss of energy; indeed, the lower skin friction of the surface ship as compared with a submarine of equal weight gives it less 'drag'. But as the speed rises, wave-making becomes a more important factor. The point at which a submarine begins to have less drag than a surface ship of the same size depends on the waterline length of the vessel. Our Guppy class submarines, which are about 300 feet long and displace approximately 2,000 tons, begin to use less power submerged than on the surface at about 18 knots. And as the speed of surface craft increases, wave-making eventually absorbs so much energy that, regardless of the bow shape used, the ships cannot practically be driven faster. Even for large ships in relatively quiet water this limit is reached at about 40 or 50 knots. But the oceans are not always quiet and, as storms raise waves higher, ships must slow down or suffer damage. Thus, the *Queen Mary* which can do better than 30 knots, sometimes finds itself moving at 10 or 12 knots in the winter months. Destroyers are deprived of their top speed by wave action more often than larger ships; which is why an 18-knot submarine can frequently, under realistic conditions, outrun a 35-knot escort.

The top speed of an underwater vehicle is limited by a phenomenon called 'cavitation'. This is, by a crude analogy, something like the change from subsonic to supersonic flow for aeroplanes. Just as Mach number is a function of temperature and pressure, so the onset of cavitation is influenced by depth. The deeper the submarine, the faster it can go before cavitation starts to increase drag sharply. If its hull design is governed primarily by hydrodynamic considerations a submarine can approach 60 knots before cavitation becomes a serious drag problem. The submarine must be buried to a depth four or five times its diameter before it ceases to raise a surface wave, which means that in the case of a hull 40 feet in diameter, the keel would have to be close to 200 feet down before the engines could be 'opened up' with full effect. Efficient propeller action may still be a problem at such depths, and the suppression of cavitation noise would also call for greater submergence.

The Submarine as a Cargo Carrier

If the development of this new technology means in fact that surface shipping can be wiped out in any prolonged war, the submarine's capability as a cargo carrier must be studied seriously. Of course, if the next war is a one-day exchange of megaton weapons leaving the world in chaos, the whole question of ocean commerce is irrelevant. But many American and Russian students of warfare consider it likely that wars will continue and that either they will be limited or there will nevertheless be sufficient survivors of a first blow to continue a classic battle of attrition. In either event a nation can win only by landing men and supplies on enemy soil. With regard to men and arms, Henry A. Kissinger estimates that 'it would require the entire available United States airlift, including the civil reserve fleet, over 30 days to move one division from the United States to the Middle East, provided all transport units were in position when the crisis occurred and provided they were not required for any other mission – two most unlikely contingencies.' He goes on to discuss the recently organized Pentomic divisions, which weigh about half as much as the standard division and therefore could be moved in roughly half the time. He concludes that 'the

minimum requirement would seem to be a capability for moving the combat element (5,000 short tons) of one new type division simultaneously. To move the combat element of one such division to the Middle East simultaneously would require 200 C-133s at a cost of $1.9 billion for procurement. To airlift the entire division within 10 days would require 272 C-133s at a cost of $2.6 billion.'[1]

Even with stockpiling, the United States is dependent on heavy imports of raw materials. If we could not keep bulk cargoes of oil, iron ore, manganese, copper, etc., coming in continally, we would not for long be able to send supplies out to our troops or allies abroad. Emergency phases of this job could perhaps be done by aeroplane, at enormous cost; but for the long pull sea-going vessels would be required. If we continue to depend on surface craft we are gambling on the ability of our merchant marine again to operate satisfactorily in wartime. If we lose – and we are betting against the trend of military technology – there seems to be only one recourse: we must develop submarine cargo carriers.

The reasons for turning to the submarine as a cargo carrier are those of necessity rather than convenience – except, perhaps, in the case of liquid cargoes. As far as dry cargo is concerned, the submarine is inherently hard to load and unload and, compared with surface ships, is apt to remain so. Ships can have hatches large enough to pass in a herd of elephants if necessary. Although these hatches must be reasonably watertight, they need not have the absolute integrity required of submarine hatches, which are traditionally small and few in number. And designers and engineers have long since learned that submariners are distrustful of any added or enlarged openings into the pressure hull. Surface cargo carriers can be festooned with booms, masts, winches and other paraphernalia for the rapid movement of cargo through the hatches and on to the pier. A submarine, which must be as clean of surface excrescences as a fish if it is to go fast and silently when submerged, must do without such aids, or it must painfully retract them when it submerges. Troops, however, are one form of dry cargo which are self-loading and unloading.

Despite all its inefficiencies as a cargo carrier, the submarine nevertheless can easily prove superior to a plane. During World War I, the U-boat *Deutschland* successfully made a round trip from Germany to the United States and return. Outgoing, it carried dyestuffs reputedly worth twice the construction cost of the submarine. It returned with a cargo of rubber and nickel. Today, a much more practical underwater carrier could be designed. Even so, the submarine will never be an economical way to transport dry cargo in bulk.

However, the submarine is more adaptable to the hauling of liquid cargoes. This primarily means oil, which makes up about half the tonnage moved across the oceans. Liquids can be carried in relatively light exterior tanks fully exposed to water presure and they do not need the elaborate handling gear of dry cargo. Oil may also be carried in a flexible, self-supporting container, towed by the submarine.

Preliminary efforts to design a cargo submarine are under way in Japan, Britain and the United States, either with private financing or government support. Although the studies are far from completion, engineering information is nevertheless being amassed. As conceived on paper, the cargo submarines range from 30,000 tons at 23 knots to an enthusiastic 80,000 tons at 50 or 60 knots, the latter to supply England with iron ore from the Hudson Bay area or oil from the Middle East. Such specifications are undoubtedly feasible technically. Nor is there much doubt that the submarine can, far more advantageously than a surface ship, translate the unlimited power of the nuclear reactor into speed. But peacetime economics are heavily against the submerged carrier.

In summary, trends in technology are favourable to the submarine as against the surface ship: In spite of the increasing – and to some degree productive – research being devoted to the problem of detecting submerged submarines, these retain essentially all their past invisibility. Nuclear weapons and improved performance have given the submarine a new strategic mission and should enhance its traditional roles in naval warfare. The surface ship, menaced by both air and undersea power, may have to forfeit many of its functions to the submarine; the extent of the shift will depend largely on the degree to which the submarine solves some of its own problems, particularly that of communications.

[1] *Nuclear Weapons and Foreign Policy*. New York: Harper, 1957, p. 163 and 164.

Do Small Navies still Make Sense?

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IN THE GOOD old days, one could buy a small corvette complete for about $1,000. What a boon that must have been for budget and defence committees, to say nothing of naval staffs! That was nearly 170 years ago. Somewhat later Fulton installed the first steam engine in a ship, and we had to get used to iron as a ship-building material. Life was going to be difficult for both seamen and budget specialists, because from that time on, inexpensive warships were a thing of the past. The technique of ship construction, as well as propulsion and weapons, have since that time been in a constant state of flux, with the rate of development increasing from a slow pace to its present dizzy tempo. Hence navies have been in a continuing state of renovation for a hundred years, and costs have risen with reckless abandon. Before World War I, the cost of a division of large battle units was the same as the nominal price of a single present-day 3,000-ton destroyer. If you consider the subsequent currency devaluation, the battleship of those days cost about the same as a modern destroyer.

Expensive Equipment

It is true that there has been a constant striving for simplicity and low cost as design factors. This has been successful up to a point. However, so many new devices and weapons have been invented that all savings in space and money have been eaten up by the innovations. As recently as thirty years ago, the navigation aids for a minesweeper consisted of a good old magnetic compass, a couple of *Peildiopter* (range and bearing device), the hand lead, which had scarcely changed for some thousand years, and perhaps the Thompson's sounding machine for soundings at high speed. Total cost: a mere thousand marks. Today the corresponding vessel carries a gyrocompass, a fathometer, radar, radio direction finder, and a modern navigation system, such as Decca or Loran, to ascertain the ship's position by radio beacon from the shore stations. Total price: in the hundreds of thousands of dollars.

The weapon situation is even more difficult. A modern, fully automatic gun of 100- to 127-mm. calibre, such as is carried on all destroyers or escorts, costs about as much as the whole ship used to cost. It is true that the single gun, with its firing speed of about one shell per second, replaces a whole battery of earlier construction.

In recent years, anti-submarine warfare has seen great progress. It began with simple depth charges and now has depth charge launchers with complicated fire-control units, homing torpedoes, sensitive acoustic listening gear, and electronic sonar.

Under these conditions it is quite unfeasible for smaller nations to acquire and operate all the types of ships used by large navies. They cannot build full-scale fleets, from the super-carrier costing over a thousand million marks, and atomic-powered rocket-launching submarines costing over a hundred million marks, to cruisers, destroyers, and M.T.B.S. They can scarcely hope to keep pace in any real sense with the development of weapons and devices.

Use of Surface Craft

Under these circumstances, it is quite appropriate to ask whether small navies have any meaning whatsoever. In view of the tremendous progress in aircraft, rockets, and guided missiles, the question arises as to the viability of surface craft. Even in our country, where not too many people have a clear notion of the extent to which they are dependent on sea transport for food and raw materials, one often encounters this question. The answer is found in the fact that now as always, the sea is the most economical and effective transportation route for bulky goods and that it connects all continents. Air transport of course does the same thing, but its kilometre/ton cost is a hundred times greater. Every country that is dependent on large quantities of imports has a lively interest in maintaining the freedom of this most productive highway over the sea. Hence we must continue to maintain a far-flung series of warships in order to protect the supply lines against any potential aggressor. These ships must be organized into navies and fleets, in order to permit rational operations and training. Aspects of combat will continue to change and develop, we will travel more under water and in the air, but the fleets will remain. Western Europe must have a special interest in them; for it is nothing but a bridgehead and *must* be supplied from the sea.

What are "Small Navies"?

It is not easy to define the term 'small' in the sense of this discussion. As late as the turn of the century, fleet strength was expressed in terms of battleships, whose heavy artillery and strong armour made them far superior in day fighting to any other ships. It is true that torpedo boats could already be dangerous in night actions. In World War II the battleship had to make way for the aircraft carrier, which with its bombers and torpedo-planes could attack the enemy from a much greater distance. However, the carrier is no longer the only criterion of fleet strength even though it continues to be the most useful vessel. Of the world's some sixty navies, the United States is incontestably the strongest. In round numbers they have 900 ships in commission. This is a fleet which can operate in any naval theatre and concentrate its forces in the shortest possible time for either attack or defence.

Surface operations on the oceans by any other nation are futile against this power. It is true the Soviets have a fleet of some 35 cruisers ready or in construction, but they have completely neglected the carrier. Thus they have put all their efforts into submarine construction, of which they now have nearly 500. This is a powerful and obvious threat to western sea lanes, especially in the Atlantic, and must be considered in relation to the question of the small navies. The Soviets have in addition about 150 destroyers, 1,500 smaller craft, and 3,600 naval aircraft – clearly the second most powerful navy.

Fleets of the Great Powers

At the other end of the scale are navies like those of Honduras with one frigate, Lebanon with three small patrol vessels, Iraq with four patrol vessels and a yacht. This type of fleet does not come within the scope of our discussion, though they can unexpectedly change their significance. Thus the Syrian Navy until recently had only three patrol boats. However, in Latakia, the Syrian naval base, twelve Soviet M.T.B.S and two submarines were recently stationed and the port was built up. A similar development took place in Egypt, where half of the ten escorts were lost in the Suez conflict, but subsequently the fleet grew by at least two Soviet destroyers, six submarines, four subchasers, four minesweepers, and a dozen M.T.B.S. The same thing could happen in Albania. However, the Soviets spare Western nerves by keeping as quiet as possible about such build-ups of combat strength. In

contrast they raise a great hue and cry when a destroyer is loaned to the German Federal Republic, as though the immediate effect were that of a torpedo aimed straight at the Kremlin.

For purposes of this analysis, neither the very small nor the great navies come into the picture. In the latter category we can list, in addition to the United States and the Soviet Union, only Great Britain and France. The British Empire (including Canada, Australia, South Africa, New Zealand, Pakistan, and India) possesses a fleet of fourteen aircraft carriers, 24 cruisers, 133 destroyers, about sixty submarines, and other small and supporting vessels in proportion.

France has a less ambitious fleet, with four carriers in service and two under construction, two battleships, six cruisers, 22 destroyers, some seventy frigates, about eighteen submarines in service and fourteen under construction, 127 minesweepers, and additional auxiliary vessels and landing craft. The well-balanced, well-trained, and effective French Navy ends our enumeration of great fleets. A long-range planned construction programme will see to it that its position is maintained.

It must be considered that the major threat to maritime traffic is the submarine. Only in specific maritime theatres lying closer to the enemy bases is the danger from air attack greater. In addition, shallow waters provide an area for modern mines with mixed detonators, reacting to magnetism, sound, and pressure, which are very difficult to sweep. These weapons offer a rich field of activity for the fleets of small countries, and they should concentrate on the corresponding types of ships. Those who are in the immediate vicinity of the presumed adversary must likewise build up a certain fighting power; for one cannot defend oneself exclusively with minesweepers and submarine chasers.

Fleets of the West

With the great number of navies and the varying geographical character of their countries, it is only natural that they should not all have a similar development. The South American ABC-States used to have one or two battleships apiece, of which the Chilean *Almirante Latorre* (ex-British *Canada*) was still in existence as a participant in the Battle of the Skagerrak. Now they have or are planning to have one escort carrier each. This is an appropriate measure, since as the nucleus of a 'hunter-killer-group' which hunts submarines, these vessels can perform a useful service in protection of commerce. The three navies have, in addition, a few cruisers, good destroyers, escort vessels, minesweepers, and submarines.

The Netherlands Navy is similarly articulated, with one carrier, two light cruisers, fourteen destroyers, nine submarines, twenty frigates and submarine chasers, 68 minesweepers, and some landing ships and auxiliary craft. All this represents a fighting strength in excess of the missions peculiar to the immediate approaches to the coastal area.

Due to historical reasons and as a result of its military-geographical situation, the Swedish fleet is constituted somewhat differently. Their two coastal armoured ships can be useful in special situations of the cliff area. The three cruisers can scarcely be used in the Baltic; they could, however, be used in convoy duties from Sweden to the Kattegat, particularly if they were rearmed with missiles. In addition, they have seventeen destroyers, 28 submarines (plus six under construction), 24 frigates and patrol boats, 58 minesweepers, and – important for the Baltic – thirty or more rapid M.T.B.s. Combined with a strong coastal defence and air force, a good army and civil defence, this is a power which is capable of defending Swedish neutrality and making things unpleasant for a much stronger adversary. It is worth noting that shelters in the rock have been made for the mass of the ships, so that a surprise attack, even with atomic weapons, would not destroy them. It is also remarkable that the country often called a welfare state has actually a very strong armament programme and a will to defend itself.

Fleets in the Mediterranean

Not quite so powerful is the naval armament of Turkey, which is in a geographical position comparable to that of the U.S.S.R. Here the emphasis is on land and air forces. The navy still has the battle cruiser *Yavuz*, the old German *Goeben*, which still looks astonishingly modern, but is no longer quite suitable for our times. In addition, the fleet has eight destroyers, seven submarines, some thirty minesweepers, and a number of minelayers and small auxiliary vessels. The principal mission is the defence of the straits through which the Muscovites have

sought to force their way for centuries. If they remain closed, a significant part of Soviet naval strength, including a fifth of their submarines, remains locked in the Black Sea.

Naturally the Turkish fleet does not stand alone; the American Sixth Fleet will support it with its tremendous fighting power. On the other hand, the Greek fleet, consisting of a cruiser, sixteen destroyers and frigates, four submarines, nineteen minesweepers, and a number of auxiliary and landing craft, will have its hands full to protect the supply lanes to its own country, even discounting political opposition. Similarly, the Italian fleet will be entirely devoted to escort missions. It has three cruisers, five destroyers, 42 frigates, six submarines, something over 100 minesweepers and a number of smaller and auxiliary vessels. As soon as the cruisers are rearmed with missiles, they will be able to carry out good escort missions in the Mediterranean in deep water where there is no mine danger.

The Japanese fleet, the third strongest (after the United States and Britain) at the outset of the war, was, like the German fleet, wiped out in the catastrophe of 1945, and is likewise coming back as a small navy. It presently has thirteen destroyers in service and under construction, three submarines, and numerous small vessels. Because of the country's complete dependence on imports from overseas, it is planned to increase the number of destroyers and frigates. There is also talk of constructing an escort carrier and some cruisers.

It is to be noted that in all navies the existing destroyers are often no longer the unit that is to attack large enemy ships with torpedoes and protect its own with gunfire. It is rather the smallest all-round combat ship that is capable of fighting aircraft as well as submarines, can lay mines in great numbers, protects merchant vessel convoys as well as landing forces and carrier fighting groups. It is a dangerous adversary for all types of combat ships from cruiser to M.T.B. and can bring its guns into action against shore targets in support of its own army flank or in an offensive. The destroyer and the frigate are becoming the all-purpose units; hence there is an endeavour to arm both of them with anti-aircraft missiles. In the United States they are already attaining a size of about 5,000 tons, and will thus be successors to the earlier small or light cruisers.

West German Planning

The Federal Republic has from the beginning planned most soberly and has renounced all ship types that will not be definitely used by us. As it is, there are plenty of tasks incumbent on us by our situation on two seas. Aside from a school ship of some 4,800 tons, which, contrary to many press reports, is a training ship and not a cruiser, the type chosen as the largest unit would be the 3,000-ton destroyer as all-round combat vessel. The Federal Republic has obligated itself to produce twelve of these. For actual escort service these will be supplemented by six escorts of 1,700 to 1,800 tons. These could be called frigates. Offensive power in this defence set-up is provided by forty M.T.B.s and twelve submarines of 350 tons. In view of our very shallow water passages, 54 minesweepers constitute a minimum. A number of landing craft will supply coastal areas outside the harbour areas, transport troops by sea, and maintain lines to the islands. A small naval air arm of 58 first-line planes (in addition to reserve aircraft, rescue planes, and helicopters) will serve for armed reconnaissance and anti-submarine warfare.

German-Danish Partnership

These tasks are all essential to the life of our people and can scarcely be avoided within the framework of the NATO alliance, since each partner has similar missions within his own coastal area. All members have a common responsibility for A/S warfare in the Atlantic, for in the event of a conflict this would be the major hunting ground of the overgrown Soviet submarine fleet. The Federal Republic's Navy will make its most effective and significant contribution if in co-operation with the Danish Navy (eighteen frigates, twenty M.T.B.s, submarines, 36 minesweepers) it so defends the Danish straits that the Soviets are contained in the Baltic. If these narrows are closed, it means that there will be 100 to 150 fewer submarines to sow destruction in the Atlantic. It can be said that a future battle for the Atlantic will be decided 50 per cent in the Danish straits. This is the meaning of the reconstituted little German fleet with its limited mission – to help bring up supplies over the North Seas; in co-operation with army and air forces as well as with the forces of its allies, to defend the strategically

most important position at the entrance to the Baltic. The Soviets talk about the 'aggresive' *Bundesmarine*, but they keep very quiet about the actual numbers of forces involved. The summary on this page shows clearly who is planning aggression in the Baltic. However, the blatant Soviet propaganda is the best proof that the two little fleets in the western corner of the Baltic are a source of worry to them, even when they have the good taste to compare these fleets to little pooches yapping at an elephant. Moreover, we can see clearly that these big statements are highly revealing, and that up to now the barking has found its chorus exclusively to the east of the Iron Curtain.

Effective Co-operation

It would take too long to describe all the small navies of the NATO and Soviet blocs. They are similarly constituted, i.e. of destroyers, frigates, sub-chasers, M.T.B.S, submarines, minesweepers, and auxiliary vessels. There is one difference – the fleets of Poland and the Soviet Occupied Zone are under the sharp control of the Soviets, while those of the NATO are completely independent in their internal affairs, lend mutual assistance in matters of training, and in all exercises co-operate excellently with equal rights.

By exchange of knowledge and experience within the NATO navies, it will be made possible for the little navies to keep up-to-date without being weighed down by expenses. They are accordingly capable of looking after their own local problems and in this way they can lighten the tasks of the great fleets in their primary oceanic missions. A good example of the division of labour is afforded by the Belgian Navy, which has soberly and clearly concentrated on minesweeping, and its fifty excellently manned minesweepers are making a valuable contribution to the security of supply lines. Here as in other small fleets the exact knowledge of one's own waters and their peculiarity makes their performance especially valuable.

If one counts all the forces of the small NATO navies, they come to a most respectable number of vessels which can make life miserable for a lot of submarines, sweep many mines, and thereby keep free hundreds of miles of shipping lanes. By themselves, many of the small navies had scarcely any longer a *raison d'être*; they have found it anew in the alliance with the great sea powers.

	W. Germany[1]	Denmark	Poland & Sov. Zone	Sov. Baltic Fleet
Cruisers	—	—	—	8
Destroyers, Escorts, Frigates	1 (18)	18	10	70
Minesweepers, etc.	40 (54)	36	160	over 300
Submarines	2 (12)	4	8	130–150
M.T.B.S	12 (40)	20	19	200
Naval Aircraft	20 (58)	—	*ca.* 200	over 1300

[1] In parentheses: planned goals.

The Characteristics of Modern War

From Military Herald, Moscow, June 1958

Colonel I. BAZ

Colonel Baz is a writer on military strategy and doctrine of long standing, and contributes regularly to most of the journals of the Soviet armed forces on these subjects. Although this article is not new it is reprinted as an example of one consistent strand in Soviet military thought

ONE OF THE MOST important tasks of military science is to foresee and correctly determine the nature of a future war, its basic characteristics and peculiarities. It is impossible to conduct a war successfully and to win it without adequately preparing the armed forces and the whole country in peacetime. And the general theory of warfare must supply an answer to the question as to what sort of war we must prepare for. The development of the art of war, the operational, battle and political training of troops, the structure and organization of armed forces, the supply of technical equipment – the whole military set-up cannot afford not to consider this answer and must conform with it in every respect. . . .

Wars are waged nowadays by peoples. This is what all the important wars of our time have in common, in spite of all the differences between them. A future war, if we are not successful in averting it, will be one in which the participants will not only be armies and navies, but whole peoples with all their material and spiritual resources. This thesis applies equally to a just war, and to an imperialistic, reactionary, unjust war, insofar as such a war cannot be waged by troops alone. . . .

The armed forces peculiar to contemporary war, far exceeding in number those of earlier wars, and the technical weapons with a range unknown in history, can no longer be fitted into those limits which characterized past wars. The massive armies of today, consisting of many millions of men, require an immeasurably greater space than armies of the past. And the greater the numerical strength of armies, and the range of technical fighting equipment, the greater the territorial and strategic dimensions of a war.

The Second World War brought far more territory into the sphere of military operations than the First World War, over five times more in Asia and Africa, and in Europe seven times more.

It can hardly be doubted that if a third world war is unleashed, it will exceed the First and Second World Wars in its territorial scope and may embrace the land and water surface of the whole globe. . . .

The validity of these laws also throws light on the question of the duration of modern wars, and forms a scientific basis for its correct determination. The First and Second World Wars each lasted four or five years. This was due to the fact that massive armies of many millions with their large quantities of technical equipment quite naturally required no small amount of time in order to carry out decisive military operations against such massive enemy armies. Of course, technology speeds the matter up and, generally speaking, the appearance of new technical equipment creates some possibility of achieving victory in a shorter period at the present time. Nevertheless, the armed forces of both sides and the spatial extent of armed struggles are so great under contemporary conditions that it is scarcely possible to conclude a war within a short period of time. Even the appearance of atomic and hydrogen weapons, of medium and long-range rockets, cannot ensure

the swift destruction of such massive forces, and consequently a swift conclusion to the war. In fact, the use of these weapons by both sides leads rather to the prolonging of a war, than to its speeding up. Thus, if in the past big wars might just as well be short as long, in our epoch, all big wars are inevitably acquiring a more or less long-drawn-out character. . . .

Universality of Modern War

The Soviet Union and the other socialist countries, are not interested in an aggressive war.

But we are not afraid of war, for we are fully confident of our own strength. The socialist world is provided with sufficient means to defend itself, and to conquer an aggressor. And we can be sure that, if rash imperialist adventurers were to subject mankind to a third world war, then capitalism would find its own grave therein.

There can be no doubt that a third world war, which would certainly take the form of a new imperialist attack on the U.S.S.R. would, as a result of the same principle, lead to the destruction of the capitalist system in general.

In such a war each side would show the maximum will and effort in its efforts to mobilize and put into operation all economical, political, moral and especially military potentialities and resources. In such circumstances, there would be hardly any country which, sooner or later, would not be drawn into the war. The war, without a doubt, would be of a widely coalitioned character.

From what has been said, it would be wrong to conclude that the possibility of any other war in the future apart from a world war is excluded. It is well known that in the post-war period, a series of small localized wars took place as, for example, the wars in Korea, Vietnam and Egypt. Wars of similar type and scale could take place in the future. In one or another region of the earth, a civil war could break out (as, for example, in Cuba), there could be a national liberating war (as there was in Indonesia and Malaya, and as is now taking place in Algeria), or there could be aggression by imperialists against small countries (as, for example, England's invasion of the Yemen and Oman). One cannot discount the possibility of such a war between two or more bourgeois states: imperialism means war, and this is all the more true of contemporary imperialism, which is causing wars of the most varied type and scale. But, for imperialism, by far the most characteristic and typical wars are world wars. Although there have been great wars in other epochs, world wars are the specific product of imperialism.

Minor and Global Wars

On the other hand, we must bear in mind that, at the present time, the world is indivisible, and each local, minor war, has a tendency to become the prologue of a world war and turn into a world-wide military conflagration. The theory of the apologists of imperialism, which preaches so-called 'minor nuclear wars', has nothing in common with the truth, and is calculated to deceive and frustrate the efforts of peaceful powers to prevent a new world war.

The possibility of a minor war becoming a large-scale war is as old as war itself. It has always existed. But at the present time this possibility is especially great, in particular as a result of the saturation of the armed forces with long and super-long range weapons, which makes it possible to deliver a blow at a distance of hundreds, and even thousands of miles. The presence and abundance of similar weapons was a peculiarity even of the Second World War. But at that time it was kept within the framework of the air force. In a future war, the use of rockets, together with the air force (which in all respects has grown beyond recognition since the Second World War), will have acquired great dimensions and, as a result, both the air force and rockets will carry atomic and hydrogen bombs over vast distances.

These military-technical possibilities could exert great influence in war, not only on the front-line, but also throughout the depth of the enemy's rear. Correspondingly, the obliteration of the boundaries between front and rear, which was a characteristic feature of the Second World War, will be much more marked in a future war.

The role of the supply services in contemporary warfare has increased enormously and is continuing to increase. If the supply services acquired decisive significance in the First and especially in the Second World War, then the course and outcome of a future war would be dependent on the rear services to an even greater extent; in such a war victory would be completely impossible unless the home front and

supply services are highly organized, economically and technically efficient, and having high morale. Therefore, from the very beginning of a future war, both sides would strive to destroy or paralyse the work of the enemy rear services, and on the other hand to organize reliable anti-aircraft, anti-paratroop, anti-atomic, anti-chemical and anti-bacteriological protection and defence of their own rear services; this would necessitate the allocation of a significant proportion of the armed forces and equipment to fulfil these tasks. Consequently, military science and military leaders have the extremely complicated task of deciding the correct allocation of armed forces and equipment to conduct the battle at the front, conduct operations in the enemy's rear and conduct the defence of their own home front.

The appearance on the scene of new military equipment brings about a sharp intensification, even of such a characteristic aspect of contemporary war as the expansion of armed struggle to include air-space and the under-water sphere. Already in the Second World War, this tendency had been considerably developed. A future full-scale war will be all-encompassing, so to speak, that is, a war waged in three dimensions.

The evolution, or rather revolution, being experienced at the present time by the armed forces in connection with the rapid development of military equipment, gives operations, of any scale, a depth and speed unknown before. Modern armed forces also have at their disposal the greatest possibilities in military history for carrying out the military manœuvres required both by the scope of contemporary warfare, and the well-defined character of its aims. But alongside the generally mobile character of armed conflict in a future war, new positional formations will doubtless also find a place: just as attack presupposes defence as the unavoidable and essential element in its make-up, mobile operations include positional operations, without which they are impossible on a large scale. The mobile character of military operations will possibly be expressed most strongly in the initial stages of a war.

Absurdity of Short Wars

It is well known that in capitalistic countries, various absurd 'theories' are current regarding the possibility of a lightning atomic-hydrogen war against the U.S.S.R. It is significant that these theories, designed mainly for ideological preparation for war, are in no way completely accepted even by the many bourgeois men and leaders. From their pronouncements, it is clear that although the initial stages of the war are also conceived by them primarily as a series of sudden powerful atomic-nuclear blows, even so, they do not consider it possible to win against a well-prepared and powerful enemy, either by means of lightning attacks, or with the aid of weapons of mass destruction alone.

Along with this, one must take into account the fact that contemporary means of attack, primarily the air force and rocket equipment, atomic thermo-nuclear and chemical weapons, facilitate the carrying out of surprise attack and make it particularly dangerous. The seizure by the enemy of strategic initiative must, under present conditions, inevitably lead to drastic consequences for the country subjected to the sudden attack. That is why the highest possible degree of alertness and preparedness for war is required of personnel of our armed forces. In carrying out the tasks set by the 20th Party Congress, our armed forces and the whole Soviet people are called upon to observe vigilantly the plottings of the enemies of peace; to take measures for strengthening the defensive power of our Socialist State, to keep our defences on a level with contemporary military science and technology, and to safeguard the security of our homeland.

The appearance of atomic and hydrogen weapons on the scene alters the nature of war in many ways, but of course a war cannot and will not be fought with these weapons alone. Not only does the employment of these weapons not dispense with conventional armed forces, but on the contrary, it requires their expansion.

Weapons of mass-destruction are thus called because their use causes enormous losses. The dispersion of troops with their subsequent rapid concentration along the front, and in depth, is a logical consequence, and unavoidable result of the appearance of atomic and hydrogen weapons, and will become a characteristic feature of a future war. But losses of men may still be very great. We must prepare not for a mild, but for an extremely intensive war, which for its whole duration will require huge replacements for

armed forces. The possibility of great losses likewise leads to a considerable increase in the number of reserves – strategic, operational and tactical, which in a future war will to a much higher degree than in past wars, be earmarked to replace troops that have been put out of action. Thus, as regards the advent of weapons of mass-destruction, we must by no means expect armed forces to vanish or to be reduced in a future war, but in fact to continue expanding.

The imperialists would like to dispense with massive armies, insofar as they cannot seriously count on high morale among the popular masses and the armies of their countries. . . .

It is true that a third world war will, to a much greater extent than the First or Second World Wars, be a war of machines, a war of motors, a war of electronics, radio-technology and automization. It is true that a future war will, to a considerable extent, be an atomic and hydrogen, and possibly also a chemical and bacteriological war. It is true that contemporary war is war of physical, chemical and biological science, war of technological science and of science in general. But it is also true that a third world war, like all wars of the past, but to a still greater extent, will be primarily and mainly, a war of the individual. His role in war will, far from declining, in fact become still more significant.

It is well known that equipment is useless without the man behind it. But equipment has spread so much in the armed forces, and is used in warfare on such a large scale, that its use and servicing require millions of people. Yet more millions of people are occupied in producing equipment, and everything essential for its production. Thus technology is not ousting the human element, but on the contrary, is bringing greater and greater masses of people into war.

Consequently, in a future war, the correlation between people and technology will not differ fundamentally from that of the Second World War. The famous Marxist thesis on the pre-eminence, the leading position of man in this relationship, and on his deciding role, remains valid. The law according to which the deciding influence on the course and outcome of a war is exercised primarily by man himself, is, in modern conditions, acquiring greater validity than ever before.

This singularly correct presentation of the problem in no way signifies any under-estimation of technology. Military material is the immediate material basis of the armed forces' combat strength. . . . We must state categorically that, in a modern large scale war, victory over a powerful enemy, apart from other considerations, pre-supposes the achievement of superiority in material over him.

In connection with this, we must mention one more thesis of Marxism-Leninism: the dependence of military art on material. From this it follows that, without achieving superiority over an enemy in material, it is impossible to achieve superiority over him in military skill or in methods of conducting military operations and war in general. The complete revolution which is now taking place in military affairs is dependent to a significant degree on the very rapid qualitative and quantitative development of military technology. Therefore, insufficient attention to the study and mastery of military technology, however much its significance is under-rated, represents a complete miscomprehension of the nature of a future war, fraught with extremely serious and catastrophic consequences for an army. . . .

Attaching great importance to the question of equipping the Soviet armed forces with military equipment, the Communist Party and Soviet Government are taking all possible steps to ensure that our weapons and equipment should constantly be on a level with the latest achievements. Thanks to the constant care of the Party, Government, and the efforts of the entire Soviet people, our armed forces are equipped with every type of modern equipment and armament, including atomic and thermonuclear weapons, and rocket equipment. The entire personnel of the Soviet Army and Navy is systematically and determinedly mastering the use of this technical equipment.

The increasingly intensive process of supplying the army with equipment, which is taking place on the basis of the rapid development of natural and technological science, is increasing the dependence of the armed forces on the rear services, and making their role in the course and outcome of a war more important. If, in previous centuries, nothing depended on economics to such a degree as the army and navy, then nowadays, in peace and in war, this dependence has assumed especially large proportions and importance.

Strength and the Planned Economy

The history of wars teaches that only those countries, whose development and planning of their economy is better than that of the enemy, have withstood the ordeal of war. Here we see one of the basic rules for achieving victory in contemporary warfare; a modern war would be fundamentally an economic war; a war of works, factories, transport, power resources, scientific-experimental institutes and technological laboratories. In complete accord with this, the preparation and conduct of a future war would, to a greater extent than previous world wars, demand an accurate estimate of the economic potentialities both of one's own and of the enemy's country.

But this is only one side of the problem concerning the decisive role of the rear services in contemporary warfare. The other, no less important side, concerns the ever-increasing dependence of armed conflict and war in general, on the morale of both the armed forces and the entire population. The morale factor has always played a decisive role in war. The whole history of war has taught us that a state can only withstand the ordeal of war if the morale of its troops and support and unity of the people remains stronger than that of the enemy throughout.

This historical law applies with especial force in modern conditions, when war is characterized by the extreme decisiveness of the aims pursued and, connected with this, by the decisive nature of armed conflict, unlimited in its ferocity. A future war will demand that every member of the armed forces and civilian population should strain his physical and moral forces to the utmost. We cannot count on success if, even in peacetime, we do not have a high morale potential, the level of which is determined, first of all by the socio-economic and political structure of the country, by the political basis and aims of the war being fought, and by the attitude of the masses to the war.

Formulating one of the chief laws for determining success in war, Lenin said that in any war, victory ultimately depends on the morale of those masses who shed their blood on the battle-field. In other words, victory ultimately depends on the morale and support of the working masses, however much they may have to shed their blood on the battle-field – and now even at the home front which has become vulnerable to enemy attacks. Therefore, we see another of Lenin's formulas in connection with this question: he who has the greatest reserves, the greatest sources of strength and the most support from the mass of the people, will be victorious in war.

Importance of the Home Front

Thus, the first condition for victory in a future war will be the presence of a strong, morally stable home front, without which there can be no hope either of the rear services functioning efficiently to safeguard the front, nor of high morale and fighting ability in the troops, on whom the successful conduct of the armed struggle depends. That is why a future war can only make it yet more essential to take stock of the moral and political potential both of one's own country and of the enemy countries. . . .

Nowadays, war includes in a single complex, not only armed struggle (on the front and in the rear) but also technical, scientific, moral-political, psychological, diplomatic and other forms of warfare, i.e. war on the home front, involving the whole country with all its material and spiritual resources. This law of contemporary warfare will achieve its greatest development, and will act with particular effect, in a third world war, if attempts to avert this do not succeed. It will be an all-embracing war, unprecedented in its scope and characterized by the most widespread and intensive use of all forms and types of combat experienced in history, and again primarily by the combination of armed combat with warfare with economic, technical and moral-political forces and resources, the efficient and skilful use of which will be just as indispensable a prerequisite of victory, as the efficient and skilful use of armed forces. . . .

Millions of workers, the popular masses, are the true creators not only of civil but also of military history. It was the popular masses who ultimately decided the outcome of the First and Second World Wars. There is no doubt either, that they will decide the issue of a third world war, if one is unleashed by the dark forces of imperialistic reaction. And this means that a third world war cannot help but lead to the defeat of the imperialistic states, to the complete and final downfall of capitalism as a whole.

Mr Khrushchev in Peking

The text of Mr Khrushchev's speech in Peking, which has been the subject of much comment in the West, is reprinted in its entirety because of its importance as an extremely careful formulation of Soviet declaratory policy at the present time

PERMIT me to congratulate you, the entire fraternal Chinese people, with all my heart on the occasion of the 10th anniversary of the Chinese People's Republic. It is a great and happy day not only for you, but also for all the friends of your great country.

This year, 1959, is rich in significant, or, as we say, 'round' dates. This year the Polish, Rumanian, Bulgarian and Albanian peoples mark the 15th anniversary of the establishment of people's democracy in their countries, while our German friends will celebrate the 10th anniversary of the proclamation of the German Democratic Republic in a week's time.

We are happy that we are celebrating here with you, in festive Peking, the glorious victory of the Chinese people which has opened up a new era in the history of China. Each such momentous date is a historic landmark on the road of the swift development of socialism and communism.

Ten years ago, when the Chinese people took power into their own hands, the whole world saw that the Chinese revolution was an event of tremendous historical importance. Both the friends of the Chinese people and their enemies understood that the victory of the people's revolution in a country with a population exceeding 500 million would radically change the balance of forces on the world arena in favour of socialism. It would still further strengthen the forces of the national liberation movement throughout the world.

The victory of the Chinese revolution was another triumph of the revolutionary, transforming and life-giving force of Marxist-Leninist ideas.

Routed in open battle, the enemies of People's China cherished the hope that the Chinese people would be unable to cope with the numerous difficulties and obstacles that had arisen in their way. As for us, true friends of People's China, we realized full well, of course, from personal experience, that the building of socialism in such a vast and formerly backward country presented considerable difficulties.

We saw at the same time what a mighty upsurge of revolutionary enthusiasm the victory of the people's revolution had produced, how the inexhaustible forces of the Chinese people were coming into play.

All upright people sincerely believed that, having taken their destiny into their own hands, the Chinese people were capable of defending their native land and establishing a new, socialist scheme of things there.

We know from the experience of our country that when the working people take power into their own hands and when they are firmly guided by a Marxist-Leninist party, which knows how to unite the people and where to lead them, then no force can halt the advance of the people.

In such a brief speech it is impossible to speak of the successes scored by the Chinese people at a length they deserve. After the victory of the Great October Socialist Revolution, which ushered in a new era in the history of mankind, the people's revolution in China was the most outstanding event in world history.

The heroic and industrious people of China, led by their glorious Communist Party, have shown what can be achieved by the people when they take power into their own hands.

In our time many countries have rid themselves of colonial dependence. Having inherited a backward economy, the peoples of these countries are looking for ways and means to bring their countries from backwardness to the broad road of independent development, of economic and cultural progress. They have two ways to choose from: the way of capitalist development or the way of socialist development.

In an effort to breath new life into the senile capitalist system, the enemies of communism like to say that so-called private enterprise provides a better possibility for self-expression and yields better results.

However, even a simple comparison of the rates of development of the countries following the capitalist road with the rates of development of the socialist countries patently shows where the people are better able to display their creative abilities – under the socialist system or under the capitalist system.

No profound study is necessary here – life itself shows the great advantages of socialism. There is no stopping the swift development of the socialist countries, and this is filling the capitalist bosses with fear.

They acknowledge that the swift development of industry, agriculture and culture in great People's China is having a great impact on the countries of Asia and Africa. This example can result in other nations emulating it in order to achieve the same great progress, while the enemies of socialism watch with fear and apprehension for the fate of capitalism.

Now all the peoples recognize the achievements of the Chinese people, of the Communist Party of China. The peoples of Asia and Africa see in what way and under what system the talents and the creative forces of the peoples can be truly developed to the full, when a people can show the whole depth and scope of their powerful creative energy.

In one of my speeches in the United States, in a large industrial centre – Pittsburgh – I said that we had challenged the capitalist countries to peaceful competition. As honest partners, confident of our success, I said to my American listeners:

"We warn you: Look out, we shall inevitably win! Why are we so sure of this? Because we follow the right road; we are riding the fresh and new socialist horse while you are riding the old capitalist horse. This horse is still carrying you but it is already exhausted, is limping and stumbling, and therefore the rider must be on the alert lest he should fall."

Yes, our socialist steed is full of spirit, full of strength. Just as capitalism, coming after feudalism, mounted a fresh horse and left feudalism far behind, so socialism and communism, born of a new epoch, will leave capitalism far behind. They will inevitably supersede it in the arena of history.

Dear friends, a multitude of examples could be cited to illustrate the outstanding achievements of the Chinese people in all spheres of socialist construction. But it is not for me, a guest in People's China, but for you, my friends, to speak of your successes, because you have achieved them through suffering and are justly proud of the results of your labours.

And we, your friends and guests, rejoice sincerely in your magnificent achievements and victories.

It has long been known that China is an ancient country with a large population. But it was only during the past 10 years that the peoples of the world became really aware of the gigantic force inherent in the Chinese people. The struggle for freedom and national independence, the construction of socialism, enabled the Chinese people to display all their spiritual wealth.

As little rivulets flow together to form big rivers, so the work of millions of workers, peasants and intellectuals form the ocean of the people's creative efforts.

It has now become particularly clear how slanderous were the despicable allegations of the colonialists in describing the Oriental people as slow and passive, incapable of creative activity.

The colonialists did all this to justify their colonial plunder and banditry, to emphasize the superiority of the so-called 'dynamic western civilization'. The realities of People's China and the other Eastern countries completely refute their inventions.

Comrades, we are proud of the successes of the Chinese people. We rejoice in these successes all the more because they are a result of the leadership of the fraternal Communist Party of China, its central committee, headed by that great son of the Chinese people, Comrade Mao Tse-tung.

The historic merit of the Communist Party of China consists in the fact that guiding itself by the victorious teaching of Marxism-Leninism, it has aroused millions of workers and peasants to the struggle for socialism. The Chinese people are happy to have such a militant Communist Party, steeled in struggle.

Dear friends, today, this festive occasion brings back the memory of the 10th anniversary of the Great October Socialist Revolution. Then, in 1927, the Soviet Union was the only country building socialism. We were faced with many

more difficulties. Our country was encircled by capitalist states. Capitalism was absolutely superior as regards material resources.

Now the situation is different. The time is different, and we have become different.

Representatives of many countries have gathered here, at this reception by our hospitable hosts. It is gratifying to realize that the Chinese people have many loyal friends who have taken the road of socialist construction in common with China. But China's every friend has as many friends as China has. China's friends are also the friends of every socialist country, whose representatives are present here on the occasion of the celebration of the 10th anniversary of the Chinese People's Republic. Now there exists a big family of socialist countries with a population of about 1,000 million.

The new world system marches forward confidently, it advances rapidly, gaining strength as a good plant in springtime. Like a mighty tree with deep and strong roots fears neither winds nor droughts, so the new, socialist world fears no storms, no foul weather. The socialist camp has become an indestructible force that today exerts the decisive influence on the destinies of mankind.

It would be in place to recall here that the socialist countries have sent a pennant of greetings to the moon, and the moon has kindly received it.

And yet, the socialist system is in fact so young that the mighty forces inherent in it are only beginning to develop in earnest. The socialist countries have everything necessary for overtaking and surpassing the capitalist countries in the development of productive forces and in production in general and per head of the population.

The people of our countries will live better every year, they will astonish the world with numerous accomplishments and will undoubtedly win the peaceful economic competition with capitalism. And then hundreds of millions of other people in the capitalist countries will see that socialism and communism ensure a better life and will take to our road. Under socialism they will acquire not only material well-being, but also genuine freedom, the riches of spiritual life and peace for themselves and for the generations to come.

We must win and we will win the peaceful competition with the capitalist countries. Our confidence is based not only on our desire. It has been confirmed by life itself, by the experience in building socialism in a number of countries of Europe and Asia.

The experience of socialist construction in the Soviet Union is an object lesson, an open book telling how, in 42 years – 20 of which were spent on the wars imposed on us and on post-war rehabilitation of our economy – our people converted our country into the world's second power as regards economic might.

Now that we have such a great multi-millioned socialist camp which embraces a number of states in Europe and Asia, naturally we have immeasurably greater possibilities for rapid advancement along the road of socialist and communist construction.

Every new success of the countries of socialism strikingly demonstrates the superiority of the socialist system. Even those who, influenced by capitalist propaganda, still fear communism, will in time understand its noble humanist ideals. The higher the level of production and the living standards of the people, the more obvious will be the great life-giving force of the Marxist-Leninist theory.

Comrades, socialism brings the people peace, this greatest of benefits. The stronger the forces of the socialist camp become, the more opportunities it will have for successfully upholding the cause of peace on earth. The forces of socialism are already so great that concrete possibilities are arising to preclude war as a means of settling international disputes. In our times the heads of government of some capitalist countries are beginning to show a certain tendency to a realistic understanding of the situation existing in the world today.

When I talked to President Eisenhower – and I have just returned from the United States – my impression was that the President of the United States, and he has the support of many people, is aware of the need for relaxing international tension.

Maybe not every bourgeois leader can clearly pronounce the words 'peaceful co-existence', but they cannot deny that two systems exist in the world – the socialist and the capitalist systems. Recognition of this fact was the keynote of all the talks. This was repeatedly pointed out by the President and other leaders. Therefore we, on our part, must do everything possible to preclude war as a means of settling outstanding

questions. These questions must be solved through negotiations.

The statesmen in the capitalist countries cannot fail to reckon with such a decisive factor of our time as the existence of the powerful world camp of socialism. There is only one way to maintain peace – that is the way of peaceful co-existence of states with different social systems. The question is: Either peaceful co-existence – or war with all its disastrous consequences.

Now, with the present balance of forces between socialism and capitalism being favourable for the former, those who would like to carry on the cold war policy are heading for their own destruction. The advocates of the cold war are pushing the world towards another world war whose flames will devour in the first place those who unleash it.

During the first years of Soviet power the great Lenin already defined the general line of our foreign policy as a line of peaceful co-existence of states with different social systems. For a long time the ruling circles of the western powers rejected these truly humanist principles. And yet the principles of peaceful co-existence have found their way into the hearts of the overwhelming majority of mankind.

The leaders of many capitalist states find themselves increasingly compelled to reckon with the real state of affairs, to build international relations on a new basis, because in our age it is impossible to solve successfully the problems of relations between the two systems in any other way than on the basis of the principles of peaceful co-existence. There is no other way.

We are convinced that the peaceful foreign policy of the socialist states upholding peace on earth will continue to score new victories. Much effort has to be exerted to achieve this. But this noble goal is worth fighting for unsparingly.

Comrades, the socialist countries have made great progress in the development of their economy and, as a result, have created a mighty potential enabling them to continue to advance successfully. They have the means of defence against the imperialist aggressors should the latter attempt to make them leave the socialist road by interference in their affairs and to restore capitalism in them. That time has gone for ever.

But we must reason realistically and correctly understand the present situation, and this certainly does not mean that since we are so strong we should test the stability of the capitalist system by force. This would be wrong: the peoples would never understand and would never support those who took it into their heads to act in this way. We have always been against predatory wars.

The Marxists have always recognized only liberative, just wars, and they have always condemned aggressive, imperialist wars. This is one of the characteristic features of the Marxist-Leninist theory.

The socialist countries come out against war, for peaceful co-existence, not because capitalism is still strong. No. We need no war in general. Even such a noble and progressive system as socialism cannot be imposed by force of arms against the will of the people. This is why socialist countries, pursuing their consistent peace policy, concentrate on peaceful construction and by their example of socialist construction inflame the hearts of the peoples and cause them to follow their lead. The question of when this or that country will embark on the socialist road is to be decided by the people themselves. This principle is the holy of holies for us.

Comrades, our peoples have emerged on a wide and clear road and are full of boundless energy. There are no tasks that cannot be accomplished by a thousand million people who have shaken off the bonds of capitalist slavery. We are advancing to our cherished goal full of boundless confidence in the correctness of our just cause, and rallied closely together. This unity, lit by the inextinguishable light of Marxism-Leninism, is our great achievement which we shall preserve as the apple of our eye.

The fraternal union of the socialist countries, international proletarian solidarity and the unity of the world communist and working-class movement – these form the unshakeable foundation of our future victories in the struggle for communism.

I propose a toast to the great Chinese people, to the Communist Party of China and its central committee, headed by Comrade Mao Tse-tung! To the Chinese People's Republic! To the eternal and unbreakable friendship of the Soviet and Chinese peoples! To the unity of all countries of the socialist camp! To peace and friendship among all peoples of the world! I drink your health, dear comrades and friends!

Book Reviews

NATO AND AMERICAN SECURITY

Edited by Klaus Knorr. Princeton University Press. Princeton, 1959. To be published December 10, 1959, by Oxford University Press. London. 48*s*.

Reading this collection of essays, which arose from a Princeton conference on NATO strategy, one is sometimes reminded of a cartoon in *Esquire* of two worried witches on their broomsticks under a haggard moon. One witch is saying to the other: "I hear the Russian witches have a faster broom". This fear of what the other side is up to is common to most of the contributors. The problem of the missile gap, for instance, leads them to some fearful hypotheses. *If* Russia increases her lead over the United States in the production and deployment of inter-continental ballistic missiles, then the risk of a Soviet surprise attack *may* be 'dangerously high'. The Russians *may* calculate that even if they cannot wipe out the whole of America's retaliatory capability in one blow, the damage that could be inflicted on Russia by what remained of Strategic Air Command *might* be cut to an 'acceptable level' by civil defence. *If* Russia were to strike first at American deterrent bases, America *might* be inhibited from retaliating for fear that her cities would then be wiped out by a second Russian strike. One participant at the Princeton conference apparently speculated that by striking first Russia might be able to reduce her losses to 20 million people.

"This is not to say that the Kremlin would deliberately sacrifice 20 million Russians," adds Professor Klaus Knorr, "but rather that it might, under certain conditions, accept the *possibility* or even the *probability* of suffering such a scale of destruction."

Many of these hypotheses must seem far-fetched and even neurotic to the European. Most of us in Britain have ceased to take what the Navy call the Great Detergent so seriously. But it should be remembered that the seriousness with which the Americans discuss what might happen if the worst came to the worst reflects the enormous sense of responsibility they feel for the security of the West. Also, these speculations are natural to the American climate of opinion. Whereas we in Europe have been vulnerable to attack for many years, the Americans, immune from bombing during the war, are only now coming to grips with the idea of vulnerability. Moreover, the American approach to defence, based on the world's most prosperous economy, is geared to the enemy's capabilities – what he could do if he were so minded – and not to his intentions. Defence policy is much easier for European governments precisely because they have no hope of matching Russian capabilities. They are therefore compelled to take more account of Russian intentions and accept risks that America has so far been able to eschew. But with the multiplication of missiles, it is now becoming doubtful whether even America can continue to base her defence policy on Russian capabilities alone.

All these things are reflected in the book which, when we have allowed for the American climate of opinion, is a stimulating and intensely cerebral attempt to see where western security lies in the future. The starting point is the decline in the credibility of massive retaliation now that America is herself vulnerable to attack. European fears about America's response to a future aggression in Europe have led to the development of independent nuclear deterrents by Britain and France. Where is it all going to end?

Some of the contributors think the best answer would be a NATO nuclear deterrent in Europe; it would be more effective than a haphazard collection of independent deterrents, and arms control would be made much easier if there was a single nuclear authority in Europe. Others seem to feel that a NATO deterrent is impracticable because the European nations would be unwilling to surrender their sovereignty to one strong central authority: 'no annihilation without representation', as Toynbee put it. Still others think that America should try to develop enough counter-force capability to make it appear credible that America would, in certain circumstances, initiate total nuclear war.

The main impression left by the book is that argument about the nuclear deterrent is circular. As Professor Blackett has put it elsewhere, 'Once a nation pledges its safety to an absolute weapon it becomes essential to possess an absolute enemy'. Also, one may add, an absolute alliance. But are there any absolute enemies or allies? As long as the West remains geared to a total nuclear strategy we are likely to search in vain for agreement, either between ourselves or with the Russians. Perhaps the most valuable chapter in the book, therefore, and certainly one of the most penetrating, is that by Malcolm Hoag on the need for a conventional limited war capability in Europe. He brings some devastating logic to bear on the NATO shield forces. They cannot, he points out, be a trip wire for massive retaliation and at the same time an alternative to it. If we want them to be a trip wire, then the shield forces would be more credible if they were made smaller and the money put instead into civil defence in the

United States. If we want them to be a limited war force – as we surely do – then by their very size they are bound to appear to the enemy as an alternative to massive retaliation.

British readers will be interested to find a chapter by Denis Healey which is the best account one has seen of what lies behind British defence policy. He has also defined active and passive deterrence far more clearly than the author of these terms ever managed to do.

JOHN GRANT

THE MILITARY AND INDUSTRIAL REVOLUTION OF OUR TIME

Fritz Sternberg. Atlantic Books. London, 1959. 25s.

The first part of Mr. Sternberg's book describes the fundamental changes of military thought and practice resulting from tumultuous rapidity of change of modern military technology and from the rise of the Soviet Union as a military and industrial power. In a field which has been so extensively discussed from innumerable angles in the last few years, no great originality can, or should be, expected. As in a school or university text-book, the essential and minimum requirements are reasonable comprehensiveness, reasonable reliability of judgment and reasonable readability. On the whole this book satisfies all three requirements and can be recommended to all who seek to orient themselves in the real world of today. It is replete with facts, figures, statistics and quotations from a wide range of publications, though, like all books in this difficult subject, it must be read with a highly critical eye for its weaker points. The author, who was a university teacher in Germany until he left in 1933, is clearly a man of wide reading and human understanding.

The author starts with the economic fact that the industrial capacity of the U.S.S.R. is already about 40 per cent of that of the United States and increasing much faster, so that the gap is closing rather fast. The very rapid expansion of Soviet industry is attributed to a very high investment rate, which means, of course, a reduced present consumption, and to the fact that a large part of the investment is in the basic rather than the consumer industries. American figures are given which suggest that the Soviet investment in heavy industry is nearly equal to that in America.

Sternberg reminds the reader of the now familiar, but still all important fact of the West's former widespread underestimate of the rate of Soviet advance, particularly in atomic weapons, aircraft, missiles and conventional armaments, and emphasizes that the fundamental basis of this advance was achieved during the harsh Stalin regime: Kruschev inherited this industrial and military strength and so could afford to relax the internal tempo.

Mr. Sternberg evidently holds that the resulting stalemate is rather stable at the nuclear strategic level, owing to the improbability that an attack on the enemy's air power bases could be guaranteed to prevent a massive counter-attack, which might involve many tens of millions of dead. An analogous stalemate is not held to exist at the tactical level, where the U.S.S.R. has much greater strength in land forces, in spite of the greater population and industrial power of the West.

The author wisely does not attempt to give any simple remedy for the present discontents, but, on the other hand, does not take the view that a World War III with atomic weapons is inevitable. He sees the best hope in the gradual co-operation of the two giant powers and an attack on the Nth nation problem on the lines of a non-nuclear club. The dangers which will arise from the present tendency to spread nuclear weapons to all members of NATO are clearly outlined, especially in relation to West Germany which soon is likely to be much the strongest land power in Western Europe.

The case for increase of conventional forces to match those of the U.S.S.R. is strongly and convincingly argued, as is also the case for a very large expenditure on civil defence. The argument now widely current in the United States for a huge civil defence programme seems to the reviewer to make military sense but to be politically impossible—at any rate in Europe. Mr. Sternberg holds a vast civil defence programme to be of great social value as it would 'require the co-operation of everyone, and they could therefore contribute to revitalizing democratic institutions and establishing them more firmly in U.S. society'. This seems to be rather naive, for something would have to be drastically wrong with a society which required such a shot in the arm. Then there seems not the remotest chance of Western European countries (which after all are much nearer the Soviet bomb bases) following suit. Prosperous, hedonistic and carefree Europe is not thinking of going underground—what people are thinking of is next summer's holiday by the Italian lakes. If America did go in for a vast civil defence programme, it would be taken in Europe as an indication that all-out war was held to be not very unlikely: once this is believed the importance of NATO conventional forces becomes much less and NATO itself might well not survive.

This is not the place to review in detail the second and longer part of the book, which tells of the Second Industrial Revolution now in progress and of the expectation that poverty will be eliminated in the

United States within a decade or two and that this will then gradually spread to other countries. The resulting problems of leisure and of the alleged monotony of work resulting from widespread automation are discussed. Great emphasis is placed on the prospects of greatly increased productivity by automation, and this is discussed in detail in relation to both the special conditions in the West and in the Soviet Union. The importance of help for the underdeveloped countries is strongly stressed.

P. M. S. BLACKETT

STRATEGY FOR SURVIVAL

Wayland Young. Penguin Books. London, 1959. 2*s.* 6*d.*

Here, in concise form, is an intelligent guide to the nuclear dilemma dealing with the possible consequences of major nuclear war and the various theories or strategies which exist for avoiding it without capitulation. The author, who has taken part in an Aldermaston march, believes that the path of progress lies in the direction of the non-nuclear club, though the proposals which he makes are somewhat more far-reaching than those adopted by the Labour Party. He believes that the non-nuclear club could be effective in checking the spread of nuclear weapons amongst all and sundry and that it might be a sizeable step in the direction of complete nuclear disarmament. This is his strategy for survival. Whether Mr. Young's views are regarded as idealistically optimistic or realistically courageous, it may well be thought they amount to much less than a strategy for survival.

Although nuclear weapons, as Mr. Young observes, are not the only, or even perhaps the best, means of wiping out civilization, it can hardly be doubted that an effective measure of nuclear disarmament would be immensely advantageous, at least under certain conditions connected with other means of waging war and the general trend of international relations. But nuclear disarmament does not, in peacetime, necessarily mean that the world will not be wiped out by nuclear weapons in war time. If only because of the title he has given to his book, Mr. Young ought not, as he has done, to ignore this possibility. It is a very serious one.

One need not subscribe to a law of history theory to see that serious wars generally become more severe as they progress. Three simple facts are sufficient to explain this. First, men and materials become exhausted. Once actually and now figuratively, the harvest gets neglected and everyone suffers more and more. Secondly, governments and their staffs usually miscalculate the effort required to achieve the aim. In war, they therefore have to call in more allies and step up the fighting efficiency of their forces. Thirdly, in war, exceptional scientific, technological, and productive resources are put at the disposal of the armed forces. Rapid weapon developments take place. There is in war an inherent tendency towards what in the barbarous jargon of the day is called 'escalation'.

But all this depends ultimately upon the issues involved in the war and the passions released by it. War effort, obviously, is controlled by war will. War issues and war passions, however, are seldom clear before the outbreak of the war. They tend only to emerge in the war itself. In 1914, the term 'democracy' was indecent. In 1918, the war had been to make the world safe for it. In 1939, Britain had not the means of inflicting any serious damage upon German cities and she had an almost absurdly restricted bombing policy. In 1945, a routine Bomber Command operation resulted in the pulverization of Dresden. Similarly, the American bombers, initially with the power to do little more than damage French ports, and directed by highly selective principles, eventually carried out the Tokio fire raids and launched the nuclear attacks on Nagasaki and Hiroshima. These important facts should not be overlooked when the much greater possibilities of escalation in the future are considered. Even if weapons can be destroyed, the knowledge of how to make them cannot. Surely, then, a strategy for survival must be addressed primarily to the problem of war issues and war passions.

It is true, all the same, that the nature of weapons in stock at the outset could help to bring a war about and to cause its escalation. A gnat may not be deterred by a sledge hammer but the sledge hammer may be used if there is nothing else to hand. For that reason it is a pity that Mr. Young has not given more attention to the possibilities of graduated deterrence and if need be, to graduated resistance. The danger of building an army which can function only with so-called tactical atomic weapons is perhaps not much less than that of relying solely upon the deterrent value of the massive retaliation threat. This much Mr. Young implies but his examination at this point becomes thin and sceptical. In all these matters there is a great element of speculation. Markedly unequal measures of scepticism are hard to justify.

Mr. Young, however, makes a refreshingly honest confession of the possible fallibility of his suggestions and he may well be right in suggesting that true solutions will not be found in this generation. Surely no one will disagree with his plea that our main task is to ensure that there is a succeeding generation to do better, we may hope, than ourselves.

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